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The major purpose of this guide is to elicit the necessary information for the writing of educational specifications for facilities to house career programs in laboratory animal science technology. The guide is also designed to: (1) assist planners in formation of creative solutions to the housing of desired educational programs, (2) prevent important considerations from being overlooked in the facility planning process, and (3) encourage logical and systematic facility planning. The document is organized into four major parts: (1) Introduction, a discussion of purpose, organization, assumptions, instructional trends, and guiding principles, (2) The Instructional Program, relating basic program features, educational objectives, program content, planning areas, and occupational preparation programs offered, (3) Distinct Types of Instructional Areas to be Provided, in which the actual space needed to house the vocational programs are described in detail, and (4) Annotated Bibliography, a list of reference sources. (DM)

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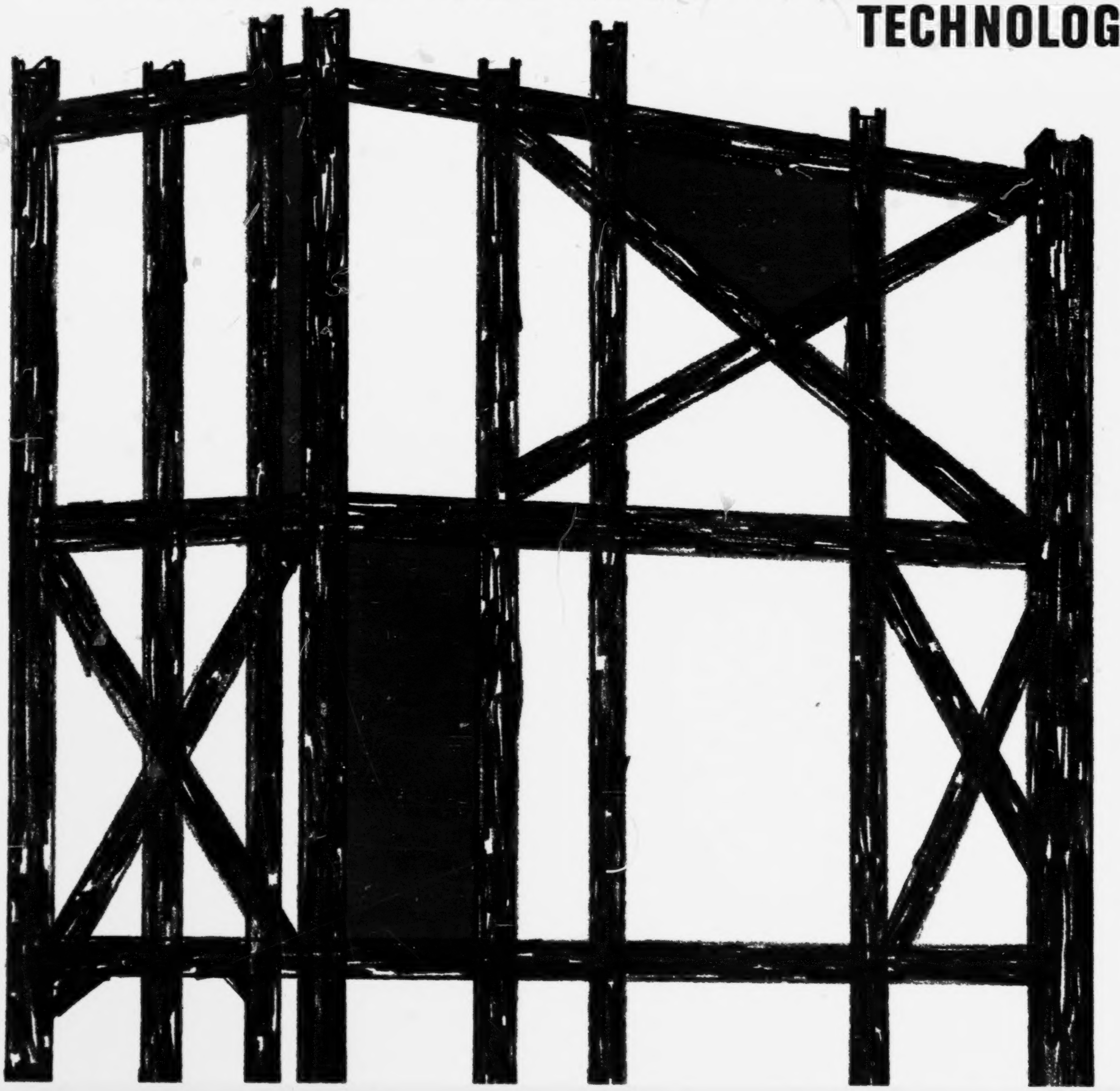
THE CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION

THE OHIO STATE UNIVERSITY
1900 Kenny Rd., Columbus, Ohio, 43212

RESEARCH 27

A GUIDE FOR PLANNING FACILITIES FOR OCCUPATIONAL PREPARATION PROGRAMS in LABORATORY ANIMAL SCIENCE TECHNOLOGY



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The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;
2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;
3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;
4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;
5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and inservice education program;
6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Resources Information Center located in the U. S. Office of Education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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RESEARCH 27

Interim Report
Grant No. OEG-3-7-000158-2037

A GUIDE FOR PLANNING FACILITIES FOR OCCUPATIONAL PREPARATION PROGRAMS IN LABORATORY ANIMAL SCIENCE TECHNOLOGY. Interim Report

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This publication was prepared pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

FOREWORD

One of the most fundamental concerns in planning for vocational and technical education facilities is that of assuring that educational requirements dictate the nature of the facilities. Other concerns include planning a sufficiently adaptable and flexible structure to permit needed modifications and programmatic changes over the lifetime of the building. Experiences have shown that adequate manuals and guide materials can provide substantial assistance in planning educational facilities. This document is a guide for planning facilities for occupational preparation programs in laboratory animal science technology. The information recorded in the guide is to be used in the preparation of educational specifications.

The guide lists a series of pivotal questions about the educational program to be offered. The answers to these program questions bear directly on the numbers and kinds of instructional areas needed in the contemplated facilities. After program decisions are recorded, the guide provides for the description of instructional areas needed to meet program requirements. Much of the material is presented in a checklist format which allows for consideration of alternatives in facility planning.

The guide was designed for use by any person or groups of persons responsible for planning laboratory animal science technology facilities. It is anticipated that knowledgeable persons such as laboratory animal science instructors, state supervisors, school plant planners, and local administrators will find the guide a useful planning tool. The guide can also be used for instructional purposes at universities, colleges, seminars, and institutes.

This guide is the fifth in a series being developed by The Center. Remaining facility planning guides, soon to be published, are in the areas of automotive services, dental technology, medical technology, and metallurgy technology. The medical technology area will consist of three guides: X-ray technicians, medical secretaries, and medical assistants. The dental technology area will consist of three guides: dental assistants, dental hygienist, and dental laboratory technicians. The Center is also publishing a general vocational and technical facility planning guide, which can be used to plan facilities for a single vocational program, two or more programs, or an entire school.

Another facility publication by The Center for Vocational and Technical Education is entitled "A Guide to Systematic Planning for Vocational and Technical Schools." This guide should be especially helpful to local and state school officials who need a total perspective of the sequential tasks involved in the process of program and facility planning. All principal planning activities from initial survey to building occupancy are described and depicted graphically in planning networks.

All guides follow the general format developed by The Center project staff and Dr. M. J. Conrad, head, Administration and Facilities Unit, College of Education, The Ohio State University.

The Center for Vocational and Technical Education, The Ohio State University, worked cooperatively with Dr. Walter Collins and Professor William Farnsworth, Agriculture and Technical College, Delhi, New York, in preparing this planning guide. Center staff project members were Dr. Richard F. Meckley, Mr. Ivan E. Valentine, and Mr. Zane McCoy.

The Center is grateful to the many individuals and groups whose assistance and suggestions led to the successful conclusion of the project. Special appreciation is due to Dr. Jerry J. Halterman, professor, Agricultural Education, The Ohio State University; Mr. Fred Manley, consultant, State Department of Community Colleges, Raleigh, North Carolina; and Mr. William Martin, president, Central Carolina Technical Institute, Sanford, North Carolina, for their thoughtful and helpful review of the initial draft of the guide.

Robert E. Taylor

Director
The Center for Vocational
and Technical Education

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PART I

INTRODUCTION

PURPOSE OF GUIDE

The major purpose of this guide is to elicit the necessary information for the writing of educational specifications for facilities to house career programs in laboratory animal science technology. The guide was developed as a facility planning tool for use by such knowledgeable persons as laboratory animal science instructors, state supervisors, school plant planners, and local school officials.

In addition to providing important and comprehensive information to be incorporated in educational specifications the guide is also designed to:

- Assist planners in the formation of creative solutions to the housing of desired educational programs.
- Prevent important considerations from being overlooked in the facility planning process.
- Encourage logical and systematic facility planning.

ORGANIZATION OF GUIDE

The facility planning guide is organized under four major headings or parts. Part I (Introduction) is a discussion of the major purpose, the underlying assumptions, recent instructional trends, and the guiding principles which were utilized in the preparation of the guide.

In Part II (The Instructional Program) important information is sought on the animal science basic program features, objectives and the kinds of vocational-technical programs which will be organized to implement them.

2/3

In Part III (Distinct Types of Instructional Areas to be Provided) the actual spaces desired to house the vocational-technical programs are described in detail.

Part IV is an annotated bibliography of reference sources which offer a more detailed treatment of the various phases of facility planning.

UNDERLYING ASSUMPTIONS

Important assumptions were made in the preparation of this guide. They were:

- Major educational program decisions have or are being made. Content of instruction has been determined through educational surveys, advisory committees, school board study, etc. Instructional methods have been determined by qualified animal science instructors and other appropriate staff members. To assure adequate educational program planning, the guide will ask important questions which may serve as guidelines to such planning.

- The numbers and kinds of students to be served by the program are generally known. Such information has been provided by enrollment projections, housing patterns, census data, student interests studies, etc.

- Sufficient finances are available to support both the provision of facilities and to operate the kinds of educational program outlined in the guide.

- A cooperative or collaborative relationship has been established with knowledgeable community personnel who are aware of economic, political, and social conditions and changes which must be taken into account in short- and long-range educational planning.

RECENT INSTRUCTIONAL TRENDS

- Expanded programs are needed in the occupational preparation program to reach not only the average and those who are college bound, but also the unusually gifted, the physically handicapped, the mentally retarded and the culturally deprived.

- The proximity, flexibility, and convenience of classrooms and work areas where teachers can plan together and produce materials encourages cooperation among teachers in developing inter-disciplinary units or courses.

- Mobile equipment and convenient space for storing it is making the same space available for many purposes and resulting in more efficient space utilization.

- Mechanical and electronic teaching aids are being employed increasingly by instructors in occupational preparation programs. To some extent, the effective use of such devices depends upon accessibility and convenience of storage.

GUIDING PRINCIPLES

In planning facilities to house programs of vocational data processing, educational program and facility decisions should be consistent with the following guiding principles.

- The educational program is the basis for space and facilities planning.

- Space and facilities should accommodate changes in the educational program.

- The program must serve the needs of a variety of groups in the community.

- Space and facilities for the program can be extended through the use of community resources.

- Safe and healthful facilities should be provided for all children.

PART II

THE INSTRUCTIONAL PROGRAM

Part II of the guide records important instructional program decisions with respect to basic program features, objectives, and needed information on occupational preparation programs to be housed.

BASIC PROGRAM FEATURES

Basic features of the educational program are determined greatly by a school or department's educational philosophy. A philosophy of education provides a base from which program objectives and teaching and learning activities designed to meet these objectives can be derived. In the final analysis, it is the kinds of teaching and learning activities to be carried on which should determine facility needs.

In this section, planners have an opportunity to express basic program features which will serve as guidelines for the planned occupational preparation programs in laboratory animal science.

Indicate below the relative degree of agreement on each of the stated program features by circling the appropriate number. The scale provided for this purpose is as follows: 1 = major major emphasis; 2 = some emphasis; 3 = slight emphasis; and N = no emphasis. (This same scale will be used frequently throughout the planning guide.)

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. Purpose of Program

    a) To prepare students for gainful employment 1 2 3 N

6/7

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

b. To prepare students for entry into further training programs. The nature of this further training is: 1 2 3 N
____
____
____

c. To prepare students for employment as veterinary assistants--specialty in large animal practice 1 2 3 N

d. To prepare students for employment as veterinary assistants--specialty in small animal hospitals 1 2 3 N

e. To prepare students for employment as laboratory animal care technicians 1 2 3 N

f. To prepare students for employment as bio-medical research technicians 1 2 3 N

g. To prepare students for employment as technicians in regulatory fields of public health and inspection (meat and food) 1 2 3 N

h. Other statements of program purposes which should be included are:
1) ______________________________
____
2) ______________________________
____
3) ______________________________
____
4) ______________________________
____
____

2. Students

a. Student admission to the program is on the basis of selective criteria which include:
1) ______________________________
2) ______________________________
3) ______________________________
4) ______________________________

b. Emphasis is placed on the learning of manual skills by students. 1 2 3 N

c. Emphasis is placed on the learning of theory by students. 1 2 3 N

d. Students have freedom of movement and access to learning materials. 1 2 3 N

e. Cooperative student work experience with local business and industry is an important phase of the program. 1 2 3 N

f. Other basic program features relating to students which should be included are:

1) ____________________
2) ____________________
3) ____________________

3. Instruction

a. The instructional approach is single discipline (animal science) as opposed to inter-disciplinary (animal science, pure science, etc.). If not a single discipline approach, describe the inter-disciplinary approach and the disciplines involved. Yes No

____
____
____

b. Cooperative or team instruction will be used. If this mode of instruction is to be extensively emphasized, describe in general terms. Yes No

____

c. Community resources will be utilized in instruction. If a high emphasis is to be placed on use of community resources, describe some of these resources. Yes No

____
____

d. Instructional flexibility is required. If a high emphasis is to be placed on instructional flexibility please describe the kinds of flexibility desired.____________________ Yes No

____

e. Specialists from the animal science industry will be utilized to enrich the instructional program. If high emphasis is to be placed on use of field specialists, specify the areas involved.__ Yes No

____
____

f. Faculty members will be selected for their specialty in the animal science program. Qualifications for selection will be ____________________ Yes No

____

g. The animal vivarium will be made up of several animal species to provide maximum animal care experiences. The species to be included are ________ Yes No

____

h. The instructional approach will make use of audio-visual aids equipment, for greater impact, (such as closed circuit television) wherever possible. Types of equipment or media to be involved are ______________________ Yes No

____

4. Other basic program features important to the planned instructional program:

a. ______________________________

____

b. ______________________________

____

c. ______________________________

____

d. ______________________________

____

____

EDUCATIONAL OBJECTIVES

Educational objectives are often identified as goals or outcomes of the educational program. An objective should describe a desired educational outcome that is consistent with a school's philosophy.

Objectives are important to both the planner and the architect since they determine the school's program and related activities. They provide important implications which when translated into facilities can both enhance as well as adequately house the desired program. Thus it becomes imperative to clearly establish the program objectives prior to embarking on educational specifications and subsequent building design.

The purpose of this part of the guide is to bring together these elements in a way to provide direction and understanding for both the planner and the architect. Space is provided below to indicate degree of emphasis by circling the appropriate number for each of the objectives, and to list additional objectives. The scale provided for this stated purpose ranges from 1 for major emphasis down to N for no emphasis.

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. To prepare students for entry into gainful employment 1 2 3 N

2. To motivate and recruit capable and qualified students to enroll in post-secondary school programs 1 2 3 N

3. To permit individuals to retrain or return to continue professional training 1 2 3 N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

4. To accentuate good physical and mental health through programs of study and activity 1 2 3 N

5. To provide pre-professional education training for students who plan to enter colleges and universities 1 2 3 N

6. To develop in students specific and measurable knowledge and skills related to clinical testing for animal disease, which includes: 1 2 3 N

    a. developing a knowledge of human and animal diseases which require clinical testing as basis for proper diagnosis 1 2 3 N
    b. collection and preparation of tissue and biological specimens for testing 1 2 3 N
    c. performing actual chemical and physical tests on specimens collected 1 2 3 N
    d. ability to apply histological techniques as a skill in helping to diagnose disease 1 2 3 N
    e. reading and interpreting results of tests performed 1 2 3 N
    f. proper recording of results 1 2 3 N
    g. developing an understanding of the ethics involved in laboratory testing and reporting 1 2 3 N
    h. ability to utilize the full range of diagnostic instruments and equipment applicable to this area 1 2 3 N
    i. ______________________________ 1 2 3 N
    j. ______________________________ 1 2 3 N

7. To develop in students specific and measurable knowledge and skills related to basic animal care which includes: 1 2 3 N

    a. Knowledge of different domestic and zoo species, breeds and strains of animals 1 2 3 N
    b. Knowledge relating to proper nutrition according to species 1 2 3 N
    c. An understanding of the importance of proper housing and handling as it relates to maximum animal production, health and humane treatment of animals 1 2 3 N
    d. A knowledge of how to improve animal strains and species through the application of genetic principles 1 2 3 N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

e. Ability to operate and maintain various pieces of equipment vital to efficient and sanitary operation of an animal vivarium 1 2 3 N
f. An understanding and ability to operate pieces of equipment involved in care and housing of large animals 1 2 3 N
g. An understanding and ability to operate specialized pieces of equipment involving care and housing in a veterinary hospital 1 2 3 N
h. Knowledge of local, state, and federal laws pertaining to general animal care, treatment, and movement 1 2 3 N
i. ____________________ 1 2 3 N
j. ____________________ 1 2 3 N

8. To develop in students specific and measurable knowledge and skills in basic sciences relating to the field which include:

a. A knowledge of basic mathematics 1 2 3 N
b. A knowledge of basic inorganic chemistry 1 2 3 N
c. A knowledge of basic organic and biological chemistry 1 2 3 N
d. A knowledge of qualitative and/or quantitative chemistry 1 2 3 N
e. A knowledge of basic biology including the various microbiologies 1 2 3 N
f. A knowledge of basic accounting and bookkeeping 1 2 3 N
g. ____________________ 1 2 3 N
h. ____________________ 1 2 3 N

9. To develop in students specific and measurable knowledge and skills in anatomy and physiology which includes:

a. Recognition of normal form or structure of different animal species 1 2 3 N
b. Recognition of normal body function of different animal species 1 2 3 N
c. To be able to identify abnormalities of animal form and function 1 2 3 N
d. The ability to relate and apply knowledge of anatomy and physiology to actual clinical situations 1 2 3 N
e. The ability to relate and apply knowledge of anatomy and physiology in actual experimental and research situations 1 2 3 N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

f. The ability to operate equipment which monitors normal and/or abnormal physiological function, as found in many veterinary clinics 1 2 3 N
g. The ability to operate equipment which monitors normal and/or abnormal physiological function, as used involving animals in biomedical institutions 1 2 3 N
h. ____________________ 1 2 3 N
i. ____________________ 1 2 3 N

10. To develop in students specific and measurable knowledge and skills in anesthesiology which include:

a. Understanding of the purpose and methods of anesthesiology 1 2 3 N
b. Understanding of operation of various anesthetic apparatus 1 2 3 N
c. Ability to apply techniques of anesthesiology throughout the duration of surgical procedures 1 2 3 N
d. Ability to maintain, coordinate, and service equipment utilized for anesthetic procedures 1 2 3 N
e. An understanding and ability to utilize anesthetics as a humane method of disposing of incurably sick or unwanted animals 1 2 3 N
f. ____________________ 1 2 3 N
g. ____________________ 1 2 3 N

11. To develop in students specific and measurable knowledge and skills in radiological techniques, which include:

a. An understanding of the theoretical basis for radiological diagnosis 1 2 3 N
b. Ability to position the patient and operate the radiological equipment to secure a roentgenogram of diagnostic quality 1 2 3 N
c. Ability to properly process exposed radiological film 1 2 3 N
d. To develop an intelligent awareness of the dangers inherent in the use of radiological equipment, both to the patient and the operator 1 2 3 N
e. Understanding of the use of radiological equipment as used in therapy 1 2 3 N
f. ____________________ 1 2 3 N
g. ____________________ 1 2 3 N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

12. To develop in students specific and measurable knowledge and skills in surgical assisting, which include:

- a. Basic understanding of asepsis and aseptic techniques as it applies to the area of surgery 1 2 3 N
- b. Knowledge of preparation of surgical packs, surgical trays and surgical instruments 1 2 3 N
- c. Ability to prepare patients for surgery 1 2 3 N
- d. Knowledge of procedures involved as a surgical assistant during the surgical exercise 1 2 3 N
- e. Knowledge of necessary aftercare required by surgical patients 1 2 3 N
- f. Knowledge of duties involved in cleaning up the operative area following surgery 1 2 3 N
- g. ______________________________ 1 2 3 N
- h. ______________________________ 1 2 3 N

13. To develop in students specific and measurable knowledge and skills involved in the production of germ-free life, which include:

- a. Methods of evolving animal species to germ-free status 1 2 3 N
- b. To have a fundamental knowledge of production and maintenance of these germ-free derived species 1 2 3 N
- c. To have a knowledge of design construction, and operation of the basic types of isolator systems 1 2 3 N
- d. To have a knowledge of procedures required for sterilizing isolator components, food and supplies 1 2 3 N
- e. To gain a knowledge of how germ-free animals may be utilized in research 1 2 3 N
- f. ______________________________ 1 2 3 N
- g. ______________________________ 1 2 3 N

14. To develop in students specific and measurable knowledge and skills in veterinary clinical and hospital management which include:

- a. Development of ability to act as a professional receptionist to all types of pet-patients and clients 1 2 3 N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

b.	Knowledge of proper telephone techniques as used in the veterinary clinic	1	2	3	N
c.	Knowledge and understanding of veterinary "practice ethics"	1	2	3	N
d.	Knowledge and ability to keep historical and financial records on all patient/clients	1	2	3	N
e.	Ability to act as a nurse in elucidating patient health history, providing restraint of the patient, and assisting in administering medication	1	2	3	N
f.	A basic knowledge of veterinary drugs, their nature and usage, and the ability to mix and compound drugs and fill prescriptions	1	2	3	N
g.	Ability to inventory and maintain the drug stock	1	2	3	N
h.	Understanding of responsibilities involved in everyday hospital patient care	1	2	3	N
i.	Understanding of responsibilities involved in properly discharging patients from the hospital to their owners	1	2	3	N
j.	Understanding the responsibilities involved in the ancillary area of "boarded" animals	1	2	3	N
k.	____________________	1	2	3	N
l.	____________________	1	2	3	N

15. To develop in senior students specific and measurable knowledge and skills in seminar work, which include:

a.	Learning to develop an experimental design or do adequate library research	1	2	3	N
b.	Ability to arrive at intelligent conclusions regarding the outcome of an experiment	1	2	3	N
c.	Ability to present an interesting and informative oral report for student enlightenment and discussion	1	2	3	N
d.	Ability to prepare a technically scientific written report in the students field of major interest	1	2	3	N
e.	____________________	1	2	3	N
f.	____________________	1	2	3	N

16. Other program objectives include:

a. ____________________
b. ____________________
c. ____________________
d. ____________________

PROGRAM CONTENT AREAS

The educational program in animal science should be designed to meet its established objectives. All decisions made with respect to the educational program should be consistent with established philosophy and objectives.

Instruction in animal science can be classified into the two major categories of general studies and specialized occupational preparation. This guide is designed to assist in the planning of facilities for specialized occupational preparation programs.

In general studies, the courses emphasize acquisition of general knowledge and the development of understanding, attitudes, and skills relevant to science, mathematics, English, social studies, physical education and health.

In occupational preparation, the courses in specialized areas of instruction emphasize the student's acquisition of technical knowledge and the development of understanding, attitudes and skills relevant to occupational preparation and the utilization of specialized skills in animal science. Learning activities and experiences are organized to enable students to develop competencies essential for entry into their chosen occupations, to further training, or to acquire new or additional competencies for upgrading in their occupational profession.

Instruction in occupational preparation in animal science is usually offered in specialty subject area courses (or disciplines). Subject matter is coordinated with appropriate field, laboratory, classroom, and work experience. Programs of occupational preparation for animal science can be classified under the five broad headings or content areas of: 1) Clinical Testing and Analysis; 2) Basic Veterinary Science; 3) Animal Care; 4) Veterinary Clinical and Hospital Management; and 5) Animal Husbandry.

These five content areas relate directly to the field of animal science and can be used to categorize most occupational preparation programs in this field. However, students in these programs often elect or are required to take courses in subjects such as English, mathematics, science, social studies, and physical education which are available to all students.

The concept of content areas is used in this planning guide because different instructional content areas usually call for different kinds of instructional facilities and equipment. The following content areas which usually call for specialized instructional areas are used in this guide.

- Clinical Testing and Analysis
- Basic Veterinary Science
- Animal Care
- Veterinary Clinical and Hospital Management
- Animal Husbandry

- Academic
- Science
- Foreign Language
- Physical Education
- Other (used when a course or unit to be offered does not fit in any of the above content areas)

PLANNING INSTRUCTIONAL AREAS BY MODES OF LEARNING

The planning of instructional areas for occupational preparation facilities can be substantially aided through utilization of the concept of modes of learning. Learning can be divided into three distinct modes--reaction learning, interaction learning, and action learning.

Reaction learning, which usually occurs in an instructional area designed for lecture and demonstration, is characterized by activities which tend to be largely teacher-centered with the central focus on instruction. Student activities include listening, observing, and the taking of notes. Group size may vary from one to a very large number as the number of students has little effect on the learning experience if proper technological aids such as television, microphones, projectors and the like are used. Because student activities are relatively passive in reaction learning, a short optimum time span is normally employed.

Lecture/demonstration areas can be used commonly for reaction learning in all subject areas. In many instances, lecture/demonstration areas can be shared not only by occupational preparation programs within vocational service areas such as animal science and dairy production. Where a great deal of facility sharing is planned, the planner should consider the optimal location within the total building and the advisability of clustering various instructional areas.

Interaction learning, which usually occurs in a seminar instructional area, is characterized by both teacher and learner activity participating as both listener and speaker. This mode of learning, of course, must occur in groups; however, sociological research suggests these groups should not exceed 15 persons for optimal effectiveness. Active interaction of all students generally requires a longer time span than reaction learning.

Seminar areas, like lecture/demonstration areas, are usually designed for common use by all subject areas. The same considerations which were outlined for lecture/demonstration areas also apply to seminar areas.

Action learning, which usually occurs in a laboratory instructional area, allows the individual student to learn by doing. Students learn on an individual basis, but may, nevertheless function in a group setting. Often in more flexible educational programs, students are scheduled for laboratory work on an individual basis. Since action learning involves overt action by individual students, the teacher's role is largely that of a consultant to the learner.

Laboratory areas, of necessity, are more specialized than lecture/demonstration areas used for reaction learning and seminar areas used for interaction learning. Since laboratory areas are designed to facilitate the learning of specific vocational and technical skills, there is less likelihood of sharing such areas by students in various vocational training programs. However, wherever common elements of skill instruction are found among vocational training programs, the possibility of sharing and clustering laboratory facilities can be both expedient and economical.

SPECIALIZED AND MULTI-USE OF INSTRUCTIONAL AREAS

The relative amounts of time to be spent by students in a given vocational program in reaction, interaction, and action learning has definite implications for the number and kind of spaces to be provided. These time considerations combined with decisions on the degree of specialization versus multi-use help determine the nature of facilities required. Since most vocational programs have concentrated on action learning experiences, facilities designed for a particular vocational program have not always provided adequate reaction and interaction facilities because of the limited utilization of such spaces. One space is often used for all instruction in an occupational preparation program. However, if the learning activities in any vocational program are broken down into the modes of learning, it will be noted that reaction and interaction spaces are the same regardless of the vocational area. By providing common reaction and interaction spaces for all vocational programs, the most modern technological aids can be justified which, in most cases, will permit lectures, demonstrations and other group reaction learning experiences for groups larger than typically used in vocational education programs. Not only will group reaction learning be improved, but more time will become available for the professional staff to work with individuals and small groups in interaction and action learning activities.

Scheduling group reaction and interaction learning experiences into specialized facilities permits complete flexibility in the use of the action learning laboratories on an open individualized basis since students would no longer need to be scheduled into the action learning laboratories on a specific class basis. This will permit 100 percent room utilization of the action learning laboratories and also permit the introduction of differentiated staff assignments into vocational education.

The open laboratory concept also permits the planned sharing of certain specialized equipment which may be required by two or more vocational programs.

NOTE: THE FOLLOWING SECTIONS OF THE GUIDE (PAGES 20-45) WILL ASSIST THE PLANNER IN MAKING MATHEMATICAL DETERMINATIONS OF THE NUMBER OF INSTRUCTIONAL AREAS NEEDED TO HOUSE THE DESIRED PROGRAM. IF THE NUMBER OF INSTRUCTIONAL AREAS REQUIRED ARE ALREADY KNOWN, PLANNERS MAY NOW PROCEED TO FORM E, PAGE 47. IF, HOWEVER, MATHEMATICAL DETERMINATIONS ARE TO BE MADE, ALL FORMS SHOULD BE COMPLETED AS ACCURATELY AS POSSIBLE.

OCCUPATIONAL PREPARATION PROGRAMS TO BE OFFERED

Information on each animal science occupational program to be offered is entered on a separate Form A which follows. Directions for completing Form A(s) appear on pages 20 and 21. To assist planners, completed sample Form As are given on pages 22-25. Form A contains data to illustrate a program for training of assistants in veterinarian small animal hospitals. Some other occupational preparation programs commonly offered in the vocational service area of animal science include commercial breeder and producer of research animals, artificial insemination, state or federal meat inspection, industrial or pharmaceutical laboratory technician, laboratory animal care technician, veterinary drug salesman, and animal caretakers.

Form A for each occupational preparation program should be filled out as completely as possible. However, it is realized, for example that an animal science instructor completing Form A may be unaware of time allotments and methods of instruction in other subject areas. If such is the case, the instructor can only supply information on courses within the content areas of animal science.

INSTRUCTIONS FOR COMPLETING FORM A
BASIC PROGRAM INFORMATION

Item 1

Occupational Preparation Program--Enter here the name of the occupational program to be offered, e.g., veterinary large animal assistant, laboratory animal caretaker, etc. Complete a separate Form A for each occupational preparation program to be offered.

Item 2

Yearly Enrollment--Enter here the projected maximum number of students to be enrolled yearly in the program.

Item 3

Nature of Students--Underline all categories which apply to the students to be enrolled in the program.

Item 4

Weeks of Instruction per Year--Enter here the number of weeks per year the school will be open for instruction, e.g., 36 weeks, 52 weeks.

Item 5

Total Weekly Periods or Modules--Enter here the total number of periods or modules (if modular scheduling is to be used) per week available for instructional purposes for each student. Do not count periods or modules scheduled for lunch and other non-instructional purposes.

Column 6

Courses of Instruction--List the courses or units of instruction to be offered either on a required or elective basis for the occupational preparation program.

Column 7

Content Area--Opposite each course of instruction, enter the appropriate content area as presented on page 16.

Column 8

Total Course Enrollment--Opposite each course of instruction enter the projected maximum student enrollment.

Column 9

Maximum Group Size for Reaction Learning--Opposite each course or unit of instruction, enter the maximum group size in number of students for reaction (lecture/demonstration) type learning.

Column 10

Estimated Weekly Periods or Modules of Reaction Level Learning--Opposite each course or unit of instruction, enter the estimated number of periods or modules per week to be devoted to reaction learning per student.

Column 11

Weekly Group-Periods or Modules (Lecture/Demonstration)--To compute weekly group-periods or modules, divide the entry in Column 8 by the entry in Column 9 and round up to the nearest whole number. Then multiply the whole number by the entry in Column 10.

Column 12

Maximum Group Size for Interaction Learning--Opposite each course or unit of instruction, enter the maximum group size in number of students for interaction (seminar) type learning.

Column 13

Estimated Weekly Periods or Modules of Interaction Level Learning--Opposite each course or unit of instruction, enter the estimated number of periods or modules per week to be devoted to interaction learning per student.

Column 14

Weekly Group-Periods or Modules (Seminar)--To compute weekly group-periods or modules, divide the entry in Column 8 by the entry in Column 12 and round up to the nearest whole number. Then multiply by the entry in Column 13.

Column 15

Maximum Group Size for Action Learning--Opposite each course or unit of instruction, enter the maximum group size in number of students for action (laboratory) type learning.

Column 16

Estimated Weekly Periods or Modules of Action Level Learning--Opposite each course or unit of instruction, enter the estimated number of periods or modules per week to be devoted to action learning per student.

Column 17

Weekly Group-Periods or Modules (Laboratory)--To compute weekly group-periods or modules, divide the entry in Column 8 by the entry in Column 15 and round up to the nearest whole number. Then multiply the whole number by the entry in Column 16.

SAMPLE FORM A (1)

FORM A (1)
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ____________________
2. Yearly Enrollment ____________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ____________
4. Weeks of Instruction per Year ____________
5. Total Weekly Periods or Modules ____________

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
(6)	(7)	(8)	Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)
An. Anatomy & Histology	*B*	*60*	*100*	*3*	*3*				*20*		*12*
Animal Physiology	*B*	*60*	*100*	*3*	*3*				*20*		*6*
Animal Pathology	*B*		*100*						*20*	*2*	*4*
Animal Parasitology	*A*		*100*						*20*		*4*
Clinical Analysis	*A*		*100*						*20*	*4*	*12*
Radiology	*D*	*40*	*100*						*10*		*8*
Anesthesiology	*D*		*100*						*15*		*6*
Surgical Assisting	*D*	*40*							*10*		*8*
Clinical Management	*D*	*60*							*15*		*8*
Zoonoses	*Academ.*										

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

SAMPLE FORM A (2)
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program *Veterinary Assistant--Small Animal Hospital*
2. Yearly Enrollment *100*
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ________
4. Weeks of Instruction per Year *36*
5. Total Weekly Periods or Modules *35*

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
			Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules	Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules	Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Lab.An.Care & Practice	*C*	*40*	*60*	*2*	*2*				*12*	*4*	*16*
Diseases of Lab.Animals	*C*	*40*	*60*	*1*	*1*				*12*	*2*	*8*
Axenic Tech., Gnotobiology	*C*	*40*	*60*	*2*	*2*				*10*	*4*	*16*
Lab.An.Res. Technicians	*C*	*40*	*60*	*2*	*2*				*12*	*2*	*8*
Animal Nutrition	*E*	*60*	*60*	*2*	*2*	*20*	*1*	*3*			
Animal Reproduction	*E*	*60*	*60*	*2*	*2*				*20*	*2*	*6*
Animal Breeding	*E*	*40*	*60*	*2*	*2*				*20*	*2*	*4*
Animal Feeding	*E*	*60*	*60*	*2*	*2*				*20*	*2*	*6*
Animal Health	*E*	*40*	*60*	*2*	*2*				*20*	*2*	*4*
Pathogenic Microbiology	*A*	*60*	*100*	*3*	*3*				*20*	*4*	*12*

[1] If both day and night school are to be offered, fill out separate forms for each.

+Content Area Codes: A = Clinical Testing & Analysis B = Basic Veterinary Science C = Animal Care
D = Clinical & Hospital Management E = Animal Husbandry F = Basic Sciences

*(Lecture/demonstration)
**(Seminar)
***(Laboratory)

SAMPLE FORM A (3)

FORM A (3)
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ______________________________
2. Yearly Enrollment ____________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ____________
4. Weeks of Instruction per Year ____________
5. Total Weekly Periods or Modules ____________

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
(6)	(7)	(8)	Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)
Histological Techniques	*A*	*40*	*100*						*20*		*8*
Virology & Immunology	*A*	*40*	*60*	*2*	*2*				*20*		*4*
Medical Terminology	*Academ.*	*60*	*100*								
Technical Seminar	*Academ.*					*15*	*2*	*6*			
Economics	*Academ.*	*40*	*100*			*20*	*1*	*2*			
American Government	*Academ.*	*60*	*100*			*20*	*1*	*3*			
Sociology	*Academ.*	*60*	*100*			*20*	*1*	*3*			
Chemistry 1	*F*	*60*	*100*	*3*	*3*				*20*	*3*	*9*
Chemistry 2	*F*	*60*	*100*	*3*	*3*				*20*	*3*	*9*
Microbiology	*F*								*20*	*3*	*9*

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

SAMPLE FORM A (4)
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program *Veterinary Assistant--Small Animal Hospital*
2. Yearly Enrollment *100*
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ____________
4. Weeks of Instruction per Year *36*
5. Total Weekly Periods or Modules *35*

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
(6)	(7)	(8)	Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)
Phys.Ed. 1	*Phys. Ed.*	*60*							*20*	*2*	*6*
Phys.Ed. 2	*Phys. Ed.*	*60*							*20*	*2*	*6*
Genetics	*F*	*60*	*100*	*2*	*2*				*20*	*2*	*6*

[1] If both day and night school are to be offered, fill out separate forms for each.

+Content Area Codes: A = Clinical Testing & Analysis B = Basic Veterinary Science C = Animal Care
D = Clinical & Hospital Management E = Animal Husbandry F = Basic Sciences

*(Lecture/demonstration)
**(Seminar)
***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ____
2. Yearly Enrollment ______________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ________________
4. Weeks of Instruction per Year ______________
5. Total Weekly Periods or Modules ______________

Courses of Instruction (6)	Content Areas+ (7)	Total Course Enrollment (8)	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
			Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ____________________
2. Yearly Enrollment ____________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ____________
4. Weeks of Instruction per Year ____________
5. Total Weekly Periods or Modules ____________

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
			Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules	Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules	Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)

---

[1] If both day and night school are to be offered, fill out separate forms for each.
*(Lecture/demonstration)
**(Seminar)
***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ______________________________
2. Yearly Enrollment ____________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ______________
4. Weeks of Instruction per Year ____________
5. Total Weekly Periods or Modules ____________

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
(6)	(7)	(8)	Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ____________________
2. Yearly Enrollment ____________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ____________
4. Weeks of Instruction per Year ____________
5. Total Weekly Periods or Modules ____________

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
			Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules	Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules	Maximum Group Size	Weekly Periods or Modules	Weekly Group-Periods or Modules
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ____________________
2. Yearly Enrollment ____________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ____________
4. Weeks of Instruction per Year ____________
5. Total Weekly Periods or Modules ____________

Courses of Instruction	Content Areas+	Total Course Enrollment	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
(6)	(7)	(8)	Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)

---

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ______________________________
2. Yearly Enrollment ______________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ______________
4. Weeks of Instruction per Year ______________
5. Total Weekly Periods or Modules ______________

Courses of Instruction (6)	Content Areas+ (7)	Total Course Enrollment (8)	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
			Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)

---

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

FORM A
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program ____
2. Yearly Enrollment ______________
3. Nature of Students (underline appropriate categories): a. day school[1]; b. night school[1]; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ______________
4. Weeks of Instruction per Year ______________
5. Total Weekly Periods or Modules ______________

Courses of Instruction (6)	Content Areas+ (7)	Total Course Enrollment (8)	Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning								
			REACTION*			INTERACTION**			ACTION***		
			Maximum Group Size (9)	Weekly Periods or Modules (10)	Weekly Group-Periods or Modules (11)	Maximum Group Size (12)	Weekly Periods or Modules (13)	Weekly Group-Periods or Modules (14)	Maximum Group Size (15)	Weekly Periods or Modules (16)	Weekly Group-Periods or Modules (17)

---

[1] If both day and night school are to be offered, fill out separate forms for each.

*(Lecture/demonstration)

**(Seminar)

***(Laboratory)

PART III

DISTINCT TYPES OF INSTRUCTIONAL AREAS TO BE PROVIDED

QUANTITATIVE FACILITY NEEDS

The number of instructional areas to house the programs described in Part II (The Instructional Program) are recorded in this section of the guide.

As indicated in Part II, there are three principal types of instructional areas used to accommodate educational programs. They are:

> *Lecture/demonstration areas* which are used principally for group reaction learning;
>
> *Seminar areas* which are used principally for group interaction learning; and
>
> *Laboratory areas* which are used principally for group or individual action learning.

In addition to these instructional areas, there are, of course, other school-wide auxiliary areas such as instructional materials centers, language laboratories, gymnasiums, and auditoriums which are part of the overall school plan. Requirements for such facilities are calculated as a part of total school planning and are not made in this guide.

It is recommended that facility needs, including those for occupational preparation programs in animal science, be made on a school-wide basis in order to provide planners with a balanced picture of the building to be constructed and to promote more economy and convenience through the sharing and clustering of various kinds of facilities and equipment.

Forms B, C and D can be used to compute the number of lecture/demonstration, seminar, and laboratory areas required, respectively, for the planned programs in animal science occupational preparation. The use of these forms requires some mathematical ability. Personnel responsible for completing the guide may want to utilize the services of individuals with this special competence.

Results of the computations on Forms B, C and D are entered on Form E which is a summary of total instructional area requirements for animal science occupational preparation programs.

In the event that instructional area requirements are already determined (e.g., it has been decided that one combination laboratory and lecture/demonstration area will be provided) the information can be recorded directly on Form E without making the computations on Forms B, C and D.

It is strongly recommended that appropriate personnel be utilized to ensure that the number of instructional areas meets program requirements. After the number of each type of instructional area is determined and recorded on Form E, information can then be recorded in the following sections of the guide concerning the nature of these instructional areas.

INSTRUCTIONS FOR COMPLETING FORM B
LECTURE/DEMONSTRATION AREA REQUIREMENTS BY CONTENT AREAS

Column 1

Content Area--Content areas are listed in Column 1.

Column 2

Total Enrollment--To obtain total enrollment for content areas, find the total enrollment for each content area as indicated in Columns 7 and 8 of Form A(s) for all occupational preparation programs.

Column 3

Maximum Group Size--Opposite each content area, enter the maximum group size desired for a lecture/demonstration area to serve the content area (Form A, Column 9).

Column 4

Total Weekly Periods or Modules--Opposite each content area, enter the total periods or modules per week the school will be open for day school instruction. This entry will be identical for all content areas and identical to the number recorded for Item 5, Form A.

Column 5

Total Weekly Reaction Group Periods or Modules--Opposite each content area, enter the total group periods or modules per week to be devoted to reaction learning as indicated in Column 11 of Form A(s) for all occupational preparation programs.

Column 6

Lecture/Demonstration Areas Required--Opposite each content area, enter the quotient of Item 5 divided by Item 4. Round up to the nearest hundredth.

Column 7

Adjusted Lecture/Demonstration Areas Required--To adjust for scheduling difficulties which result in areas being less than 100 percent utilized, multiply the entry in Column 6 by 1.3 and enter the result, rounded up to the nearest hundredth, in Column 7 for each content area.

Column 8

Totals--Since lecture/demonstration areas, unlike laboratory areas, can be utilized by nearly all content areas, the entries in Column 7 can be added for all lecture/demonstration areas with identical maximum group sizes as entered in Column 3. For example, 8a might read *2* lecture/demonstration areas with a student capacity of *50* each.

SAMPLE FORM B

LECTURE/DEMONSTRATION AREA REQUIREMENTS BY CONTENT AREAS

Content Area (1)	Total Enrollment (2)	Maximum Group Size (3)	Total Weekly Periods or Modules (4)	Total Weekly Reaction Group-Periods or Modules (5)	Lecture/ Demonstration Areas Required (5) ÷ (4) (6)	Adjusted Lecture/ Demonstration Areas Required (6) x 1.3 (7)
Clinical Testing, Analysis--Code A	*240*	*100*	*35*	*9*	*.26*	*.34*
Basic Veterinary Science--Code B	*160*	*100*	*35*	*8*	*.23*	*.30*
Animal Care--Code C	*160*	*60*	*35*	*7*	*.23*	*.26*
Clinical, Hospital Management--Code D	*180*	*100*	*35*	*8*	*.23*	*.30*
Animal Husbandry--Code E	*260*	*60*	*35*	*10*	*.29*	*.38*
Basic Sciences--Code F	*240*	*100*	*35*	*8*	*.23*	*.30*
Academic	*320*	*100*	*35*	*11*	*.32*	*.42*
Physical Education	*120*	*--*	*35*	*--*	*--*	*--*
Other (specify)			*35*			

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round off total to next higher whole number.

a. *2* lecture/demonstration areas with a student capacity of *100*, each.
b. *1* lecture/demonstration areas with a student capacity of *60*, each.
c. ______ lecture/demonstration areas with a student capacity of ______, each.
d. ______ lecture/demonstration areas with a student capacity of ______, each.

FORM B

LECTURE/DEMONSTRATION AREA REQUIREMENTS BY CONTENT AREAS

Content Area (1)	Total Enrollment (2)	Maximum Group Size (3)	Total Weekly Periods or Modules (4)	Total Weekly Reaction Group-Periods or Modules (5)	Lecture/ Demonstration Areas Required (5) ÷ (4) (6)	Adjusted Lecture/ Demonstration Areas Required (6) x 1.3 (7)

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round off total to next higher whole number.

a. __________ lecture/demonstration areas with a student capacity of __________, each.
b. __________ lecture/demonstration areas with a student capacity of __________, each.
c. __________ lecture/demonstration areas with a student capacity of __________, each.
d. __________ lecture/demonstration areas with a student capacity of __________, each.

INSTRUCTIONS FOR COMPLETING FORM C
SEMINAR AREA REQUIREMENTS BY CONTENT AREAS

Column 1

Content Area--Content areas are listed in Column 1.

Column 2

Total Enrollment--To obtain total enrollment for content areas, find the total enrollment for each content area indicated in Column 7 and of Form A(s) for all occupational preparation programs.

Column 3

Maximum Group Size--Opposite each content area, enter the maximum group size desired for a seminar area to serve the content area (Form A, Column 12).

Column 4

Total Weekly Periods or Modules--Opposite each content area, enter the total periods or modules per week the school will be open for day school instruction. This entry will be identical for all content areas and identical to the number recorded for Item 5, Form A.

Column 5

Total Weekly Interaction Group Periods or Modules--Opposite each content area, enter the total group periods or modules per week to be devoted to interaction learning as indicated in Column 14 of Form A(s) for all occupational preparation programs.

Column 6

Seminar Areas Required--Opposite each content area, enter the quotient of Item 5 divided by Item 4. Round up to the nearest hundredth.

Column 7

Adjusted Seminar Areas Required--To adjust for scheduling difficulties which result in areas being less than 100 percent utilized, multiply the entry in Column 6 by 1.3 and enter the result, rounded up to the nearest hundredth, in Column 7 for each content area.

Column 8

Totals--Since seminar areas, unlike laboratory areas, can be commonly utilized by nearly all content areas, the entries in Column 8 can be added for all seminar areas with identical maximum group sizes or entered in Column 3. For example, 8a might read 2 seminar areas with a student capacity of 20 each.

SAMPLE FORM C

SEMINAR AREA REQUIREMENTS BY CONTENT AREAS

Content Area (1)	Total Enrollment (2)	Maximum Group Size (3)	Total Weekly Periods or Modules (4)	Total Weekly Interaction Group-Periods or Modules (5)	Seminar Areas Required (5) ÷ (4) (6)	Adjusted Seminar Areas Required (6) x 1.3 (7)
Code A *Clinical Testing & Analysis*	*240*		*35*			
Code B *Basic Veterinary Science*	*160*		*35*			
Code C *Animal Care*	*160*		*35*			
Code D *Clinical & Hospital Managmt.*	*180*		*35*			
Code E *Animal Husbandry*	*260*	*20*	*35*	*3*	*.09*	*.12*
Code F *Basic Sciences*	*240*		*35*			
Academic	*320*	*20*	*35*	*14*	*.40*	*.52*
Physical Education	*120*		*35*			
Other (specify)						

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round up total to next higher whole number.

a. *1* seminar areas with a minimum student capacity of *20*, each.
b. ________ seminar areas with a minimum student capacity of ________, each.
c. ________ seminar areas with a minimum student capacity of ________, each.
d. ________ seminar areas with a minimum student capacity of ________, each.

FORM C

SEMINAR AREA REQUIREMENTS BY CONTENT AREAS

Content Area (1)	Total Enrollment (2)	Maximum Group Size (3)	Total Weekly Periods or Modules (4)	Total Weekly Interaction Group-Periods or Modules (5)	Seminar Areas Required (5) ÷ (4) (6)	Adjusted Seminar Areas Required (6) x 1.3 (7)

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round up total to next higher whole number.

a. __________ seminar areas with a minimum student capacity of __________, each.
b. __________ seminar areas with a minimum student capacity of __________, each.
c. __________ seminar areas with a minimum student capacity of __________, each.
d. __________ seminar areas with a minimum student capacity of __________, each.

INSTRUCTIONS FOR COMPLETING FORM D
LABORATORY AREA REQUIREMENTS BY CONTENT AREA

Column 1

Content Area--Content areas are listed in Column 1.

Column 2

Total Enrollment--To obtain total enrollment for content areas, find the total enrollment for each area as indicated in Columns 5 and 6 of Form A for all occupational preparation programs.

Column 3

Maximum Group Size--Opposite each content area, enter the maximum group size desired for a laboratory area to serve the content area (Form A, Column 15).

Column 4

Total Weekly Periods or Modules--Opposite each content area, enter the total periods or modules per week the school will be open for day school instruction. This entry will be identical to the number recorded for Item 5, Form A.

Column 5

Total Weekly Action Group Periods or Modules--Opposite each content area, enter the total group periods or modules per week to be devoted to action learning as indicated in Column 17 of Form A(s) for all occupational preparation programs.

Column 6

Laboratory Areas Required--Opposite each content area, enter the quotient of Item 5 divided by Item 4. Round up to the nearest hundredth.

Column 7

Adjusted Laboratory Areas Required--To adjust for scheduling difficulties which result in areas being less than 100 percent utilized, multiply the entry in Column 6 by 1.3 and enter the result, rounded up to the nearest hundredth, in Column 7, for each content area.

SAMPLE FORM D

LABORATORY AREA REQUIREMENTS BY CONTENT AREAS

Content Area (1)	Total Enrollment (2)	Maximum Group Size (3)	Total Weekly Periods or Modules (4)	Total Weekly Interaction Group-Periods or Modules (5)	Laboratory Areas Required (5) ÷ (4) (6)	Adjusted Laboratory Areas Required (6) x 1.3 (7)
Code A *Clinical Testing & Analysis*	*240*	*20*	*35*	*40*	*1.14*	*1.48*
Code B *Basic Veterinary Science*	*160*	*20*	*35*	*22*	*.63*	*.82*
Code C *Animal Care*	*160*	*12*	*35*	*48*	*1.37*	*1.78*
Code D *Clinical & Hospital Managmt.*	*180*	*15*	*35*	*30*	*.86*	*1.12*
Code E *Animal Husbandry*	*260*	*20*	*35*	*20*	*.57*	*.79*
Code F *Basic Sciences*	*240*	*20*	*35*	*33*	*.94*	*1.22*
Academic	*320*		*35*			
Physical Education	*120*	*20*	*35*	*12*	*.34*	*.44*
Other (specify)						

a. *2* laboratory areas with a minimum student capacity of *20*, each for *Clinical Testing & Analysis*.
b. *1* laboratory areas with a minimum student capacity of *20*, each for *Basic Veterinary Science*.
c. *2* laboratory areas with a minimum student capacity of *12*, each for *Animal Care*.
d. *1* laboratory areas with a minimum student capacity of *15*, each for *Clinical & Hospital Managmt.*.
e. *1* laboratory areas with a minimum student capacity of *20*, each for *Animal Husbandry*.
f. *1* laboratory areas with a minimum student capacity of *20*, each for *Basic Sciences*.

Note: In addition to the laboratory area requirement, an animal vivarium area is needed to provide laboratory animals for care and management practice and for use as part of the demonstration and teaching exercises in class and laboratory. Use Form "M" as a guide to plan this facility.

FORM D

LABORATORY AREA REQUIREMENTS BY CONTENT AREAS

Content Area (1)	Total Enrollment (2)	Maximum Group Size (3)	Total Weekly Periods or Modules (4)	Total Weekly Interaction Group-Periods or Modules (5)	Laboratory Areas Required (5) ÷ (4) (6)	Adjusted Laboratory Areas Required (6) x 1.3 (7)

a. _____ laboratory areas with a minimum student capacity of _____, each for ______________________.
b. _____ laboratory areas with a minimum student capacity of _____, each for ______________________.
c. _____ laboratory areas with a minimum student capacity of _____, each for ______________________.
d. _____ laboratory areas with a minimum student capacity of _____, each for ______________________.
e. _____ laboratory areas with a minimum student capacity of _____, each for ______________________.
f. _____ laboratory areas with a minimum student capacity of _____, each for ______________________.

SAMPLE FORM E
SUMMARY OF FACILITY REQUIREMENTS FOR LABORATORY ANIMAL SCIENCE OCCUPATIONAL PREPARATION PROGRAMS

	Instructional Areas (1)	Number Required*		Required Student Capacity (4)
		Calculated+ Forms B, C, D Column 7 (2)	Next Higher Whole Number (3)	
	Lecture/Demonstration	*1.66*	*2.00*	*100*
1	Lecture/Demonstration			
	Lecture/Demonstration			
	Lecture/Demonstration			
	Seminar	*0.64*	*1.00*	*15*
2	Seminar			
	Seminar			
	Seminar			
	Clinical Testing & Anal. Lab	*1.48*	*2.00*	*20*
3	Clinical Testing & Anal. Lab			
	Basic Vet. Science Lab			
	Animal Care Lab			
	Veterinary Clinic & Hospital Management Lab			
	Animal Husbandry Lab			
	______________________ Lab			

4 Multi-use areas

If any of the specialized areas entered above are to be combined as multi-use areas, indicate the combinations desired.

a. *Animal Care Laboratory and Seminar Instructional Area*
b. ____________________
c. ____________________
d. ____________________

5 Summary of Instructional Area Requirements

Based on the above entries and any other considerations, summarize the total quantitative instructional area requirements for the planned laboratory animal science program.

____

____

*Enter the number of instructional areas needed for each required student capacity. If the calculated number required indicates that an area will be used only sparingly, consideration should be given to sharing instructional areas with other school programs or to providing higher student capacity areas which can be subdivided for instructional purposes.

+If calculations are not made, enter estimates of needs in Column 3.

FORM E

SUMMARY OF FACILITY REQUIREMENTS FOR LABORATORY ANIMAL SCIENCE OCCUPATIONAL PREPARATION PROGRAMS

	Instructional Areas (1)	Number Required*		Required Student Capacity (4)
		Calculated+ Forms B, C, D Column 7 (2)	Next Higher Whole Number (3)	
	Lecture/Demonstration			
	Lecture/Demonstration			
1	Lecture/Demonstration			
	Lecture/Demonstration			
	Seminar			
	Seminar			
2	Seminar			
	Seminar			
	Clinical Testing & Anal. Lab			
3	Clinical Testing & Anal. Lab			
	Basic Vet. Science Lab			
	Animal Care Lab			
	Veterinary Clinic & Hospital Management Lab			
	Animal Husbandry Lab			
	______________ Lab			

4 Multi-use areas

If any of the specialized areas entered above are to be combined as multi-use areas, indicate the combinations desired.

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

5 Summary of Instructional Area Requirements

Based on the above entries and any other considerations, summarize the total quantitative instructional area requirements for the planned laboratory animal science program.

____

____

*Enter the number of instructional areas needed for each required student capacity. If the calculated number required indicates that an area will be used only sparingly, consideration should be given to sharing instructional areas with other school programs or to providing higher student capacity areas which can be subdivided for instructional purposes.

+If calculations are not made, enter estimates of needs in Column 3.

QUALITATIVE FACILITY NEEDS

In this section, detailed information on the *kind* of instructional areas required is recorded. Special forms are included for describing the nature of lecture/demonstration areas, seminar areas, laboratory areas, and auxiliary areas to be provided. For each general type of instructional area required information is sought in the following categories.

1. The relationship of the area to other instructional areas (specialized versus multi-purpose utilization of space).
2. The number of these kinds of areas needed.
3. The activities of students and teachers in the instructional area.
4. The spatial relationships within the area and the area's spatial relationships to other instructional areas and the building as a whole.
5. The instruments, furniture, and equipment required for the area.
6. The environmental factors required for the area.
7. The special utility services required for the area.
8. The minimum space requirements of the area.

FORM F

DESCRIPTION OF LECTURE/DEMONSTRATION AREA(S) TO BE USED PRINCIPALLY FOR GROUP REACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The lecture/demonstration area(s) should be planned:

a. As independent unit(s)	Yes	No
b. In combination with laboratory area(s) ____________ (specify)	Yes	No
c. In combination with seminar area(s)	Yes	No
d. As an area within a single multi-use space	Yes	No

2. Number of lecture/demonstration areas required for the desired program regardless of student capacity (see Form E). ____________

3. Student and instructor activities in this space. Indicate the extent to which each of the activities listed below will occur.

a. Listening to lectures	1	2	3	N
b. Observing demonstrations	1	2	3	N
c. Taking notes	1	2	3	N
d. Viewing films, slides, overhead projections, etc.	1	2	3	N
e. ________________________________	1	2	3	N
f. ________________________________	1	2	3	N

4. Spatial relationships. Indicate the extent to which the lecture/demonstration area(s) should be accessible to the:

a. Instructional materials center	1	2	3	N
b. Building entrance	1	2	3	N
c. Delivery area	1	2	3	N
d. Animal vivarium	1	2	3	N
e. Other instructional areas				
1) ____________________________	1	2	3	N
2) ____________________________	1	2	3	N
3) ____________________________	1	2	3	N
f. Other building areas				
1) ____________________________	1	2	3	N
2) ____________________________	1	2	3	N
3) ____________________________	1	2	3	N

FORM F

5. Furniture and equipment

a. Student seating			
1) Individual desks and chairs	P	A	NA*
a) Number of desks and chairs required	________		
b) Provision for storage	Yes		No
2) Permanent-type desk	P	A	NA
a) Number required	________		
b) Provision for storage	Yes		No
3) Desk and chair combination	P	A	NA
a) Number required	________		
b) Provision for storage	Yes		No
4) Tables and chairs	P	A	NA
a) Number of tables required	________		
b) Number of chairs required	________		
c) Provision for storage	Yes		No
5) Auditorium-type seating	P	A	NA
Number of seats required	________		
b. Stage	Yes		No
1) Permanent type	P	A	NA
2) Portable type	P	A	NA
The approximate area in square feet desired	________		
c. Sound amplifying system	P	A	NA
d. Controls for regulating light intensity	P	A	NA
e. Lectern	Yes		No
1) Permanent type	P	A	NA
2) Portable type	P	A	NA
3) Provision for storage	Yes		No
f. Projection screen	Yes		No
1) Built-in type	P	A	NA
2) Portable type	P	A	NA
3) Approximate dimensions	________		
4) Provision for storage	Yes		No
g. Television	Yes		No
1) Closed circuit	P	A	NA
2) Fixed TV monitors	P	A	NA
3) Movable TV monitors	P	A	NA
4) TV camera	Yes		No
a) Portable type	P	A	NA
b) Built-in type	P	A	NA

h. Other equipment required for lecture/demonstration area(s) are:

1) ______________________________
2) ______________________________
3) ______________________________
4) ______________________________

6. Environmental factors

---

*Code: P = Preferred; A = Acceptable; NA = Not Acceptable. This scale is used frequently on the following pages.

FORM F

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style or architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the lecture/demonstration area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the lecture/demonstration area(s).

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the lecture/demonstration area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special consideration important to the planning of the lecture/demonstration area(s).

e. Safety. In planning a school building, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the lecture/demonstration area(s).

7. Vertical instructional surfaces

a. Chalkboard	Yes		No
1) Wall mounted	P	A	NA
2) Number of lineal feet	______		

FORM F

	P	A	NA
3) Portable			
4) Provision for storage	Yes		No
b. Tackboard	Yes		No
Number of lineal feet	________		
c. Pegboard	Yes		No
Number of lineal feet	________		

8. Special utility services required

a. Electricity			
1) Projection equipment	Yes		No
2) Sound amplifying equipment	Yes		No
3) Electrical needs for other equipment (specify)	Yes		No
a) ________________			
b) ________________			
c) ________________			
d) ________________			
b. Bottled gas supply (Propane)	Yes		No
c. Air or oxygen supply	Yes		No
d. Other utility needs for the lecture/demonstration area			
1) ________________			
2) ________________			
3) ________________			
4) ________________			

9. The minimum space requirement in square feet for each lecture demonstration area (optional)______ ________. (The planner should be aware of any state or local regulation or recommendations concerning floor space requirements.)

10. Other important factors to be considered in the planning of the lecture/demonstration area(s) are:

____

____

____

____

____

____

____

____

____

____

FORM G

DESCRIPTION OF SEMINAR AREA(S)
TO BE USED PRINCIPALLY FOR GROUP INTERACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The seminar area(s) should be planned:

    a. As independent unit(s) — Yes No
    b. In combination with ____________ laboratory area(s) (specify) — Yes No
    c. In combination with lecture/demonstration area(s) — Yes No
    d. As an area within a single multi-purpose space — Yes No

2. The number of seminar area(s) required for the desired program regardless of student capacity (see Form E). ____________

3. Student and instructor activities in this space. Indicate the extent to which each of the activities listed below will occur.

    a. Small group discussing — 1 2 3 N
    b. Viewing films, slides, overhead projections, etc. — 1 2 3 N
    c. Demonstrating — 1 2 3 N
    d. Reporting — 1 2 3 N
    e. Working on projects — 1 2 3 N
    f. ________________________________ — 1 2 3 N
    g. ________________________________ — 1 2 3 N

4. Spatial relationships. Indicate the extent to which the seminar area(s) should be accessible to the:

    a. Instructional materials center — 1 2 3 N
    b. Building entrance — 1 2 3 N
    c. Delivery area — 1 2 3 N
    d. Animal vivarium — 1 2 3 N
    e. Other instructional areas
        1) ____________________________ — 1 2 3 N
        2) ____________________________ — 1 2 3 N
        3) ____________________________ — 1 2 3 N
    f. Other building areas
        1) ____________________________ — 1 2 3 N
        2) ____________________________ — 1 2 3 N
        3) ____________________________ — 1 2 3 N

5. Furniture and equipment

FORM G

a. Seminar table	Yes		No
1) Number required	________		
2) Seating for how many persons	________		
3) Permanent type	P	A	NA
4) Portable type	P	A	NA
5) Provision for storage	Yes		No
b. Chairs	Yes		No
1) Number required	________		
2) Straight-back type	P	A	NA
3) Folding type	P	A	NA
4) Provision for storage	Yes		No

c. Other equipment required for seminar area(s)
1) ____________________
2) ____________________
3) ____________________

6. Environmental factors

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of seminar areas.

____
____
____

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the seminar area(s).

____
____
____

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the seminar area(s).

____
____
____

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound system. Indicate any special considerations important to the planning of the seminar area(s).

____
____
____
____

FORM G

e. Safety. In planning a school building, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the seminar area(s).

____
____
____
____

7. Vertical instructional surfaces

a. Chalkboard — Yes No
  1) Wall mounted — P A NA
  2) Number of lineal feet — __________
  3) Portable — P A NA
  4) Provision for storage — Yes No
b. Tackboard — Yes No
  Number of lineal feet — __________
c. Pegboard — Yes No
  Number of lineal feet — __________

8. Special utility services required

a. Electricity
  1) Projection equipment — Yes No
  2) Sound amplifying equipment — Yes No
  3) Electrical needs for other equipment (specify)
    a) ______________________________
    b) ______________________________
    c) ______________________________
    d) ______________________________
b. Other utility needs for the seminar area(s)
  1) ______________________________
  2) ______________________________
  3) ______________________________
  4) ______________________________

9. Minimum space requirement in square feet for each each seminar area (optional) ______________. (The planner should be aware of any state or local regulations or recommendations concerning floor space requirements.)

10. Other important factors to be considered in the planning of the seminar area(s) are:

____
____
____
____
____
____
____
____

FORM H

DESCRIPTION OF CLINICAL TESTING AND ANALYSIS LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The clinical testing and analysis laboratory area(s) should be planned:
   - a. As independent unit(s) Yes No
   - b. In combination with ______ laboratory area(s) (specify) Yes No
   - c. In combination with seminar area(s) Yes No
   - d. In combination with lecture/demonstration area(s) Yes No
   - e. As an area within a single multi-purpose space Yes No
2. Student capacity required for scheduled activities (see Form E). ______
3. Student and instructor activities in various space divisions within the clinical testing and analysis laboratory area(s). Indicate the extent to which each activity will occur.
   - a. Student laboratory work stations with storage space
     - 1) Collecting and preparing animal tissues for testing 1 2 3 N
     - 2) Chemical and physical testing of specimens collected 1 2 3 N
     - 3) Reading, interpreting and recording of tests and results 1 2 3 N
     - 4) Preparing histological slides from animal tissues 1 2 3 N
     - 5) Preparing bacteriological slides for staining and reading 1 2 3 N
     - 6) Preparing parasitological slides and specimens for examination 1 2 3 N
   - b. Teacher demonstration-lecture area(s)
     - 1) Demonstrating the typical prepared biological specimens, slides, and demonstration models 1 2 3 N
     - 2) Demonstrating the preparation and collection of animal tissues for testing 1 2 3 N
     - 3) Lecturing on the theoretical basis of clinical testing 1 2 3 N
   - c. Incubation and drying space
     - 1) Incubation of bacteriological samples by students 1 2 3 N

2

FORM H

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

	2) Incubation of serological samples by students	1 2 3 N
	3) Drying of histological slides by students	1 2 3 N
d.	Centrifuge space	
	1) Centrifuging of parasitological samples by students	1 2 3 N
	2) Centrifuging of hemotological samples by students	1 2 3 N
	3) Centrifuging of urinalysis samples by students	1 2 3 N
e.	Weighing space	
	1) Weighing of chemical samples by students	1 2 3 N
	2) Weighing of animal tissue and fluid samples by students	1 2 3 N
	3) Weighing of laboratory animals by students	1 2 3 N
f.	Gas and electrophoretic monitoring instrument space	
	Chemical analysis of body tissue and fluids by students	1 2 3 N
g.	Histological fixing and staining space	
	1) Fixing and staining tissues by students manually	1 2 3 N
	2) Fixing and staining tissues by students with automatic equipment	1 2 3 N
h.	Storage space for histological specimens	
	1) Storage of tissue slides prepared by students	1 2 3 N
	2) Storage of prepared instructional slides	1 2 3 N
i.	Space for preparation of bacteriological and serological media	
	1) Storing chemicals, media and supplies	1 2 3 N
	2) Preparing media for clinical testing	1 2 3 N
	3) Automatic pipetting of media	1 2 3 N
	4) Area separate from main laboratory	Yes No
j.	Space for cleaning and sanitizing glassware used in clinical testing	
	1) Washing glassware	1 2 3 N
	2) Drying glassware	1 2 3 N
	3) Area separate from main laboratory space	Yes No
k.	Other space(s) (specify) ____________	1 2 3 N
	____________________________	1 2 3 N
	1) ____________________________	1 2 3 N
	2) ____________________________	1 2 3 N
	3) ____________________________	1 2 3 N

FORM H

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the clinical testing and analysis laboratory area(s)

Student laboratory work spaces to:

a) Teacher demonstration-lecture space	1	2	3	N
b) Incubation and drying space	1	2	3	N
c) Centrifuge space	1	2	3	N
d) Weighing space	1	2	3	N
e) Blood and seriological testing space	1	2	3	N
f) Histological fixing and staining space	1	2	3	N
g) Histological specimen storage space	1	2	3	N
h) Other space(s) (specify)				
______________________________	1	2	3	N
______________________________	1	2	3	N

b. Clinical testing and analysis laboratory area(s) to outside related areas to

1) Instructional materials center	1	2	3	N
2) Media and chemical preparation room	1	2	3	N
3) Cleaning and sanitizing of glassware area	1	2	3	N
4) Sterilizing area	1	2	3	N
5) Animal vivarium	1	2	3	N
6) Necropsy area	1	2	3	N
7) Student locker and restroom	1	2	3	N
8) Building entrance	1	2	3	N
9) Delivery area	1	2	3	N
10) Other instructional areas	1	2	3	N
11) Other building areas (specify)				
a) ______________________________	1	2	3	N
b) ______________________________	1	2	3	N

5. Furniture and equipment

a. Teacher demonstration--lecture table

1) Provision for storage	Yes	No
2) Provision for gas outlets	Yes	No
3) Provision for electric outlets	Yes	No
4) Provision for water supply	Yes	No
5) Provision for sink	Yes	No
6) Bacteriological hood	Yes	No
7) Flourescent antibody scope	Yes	No
8) Other provisions (specify)		
a) ______________________________	Yes	No
b) ______________________________	Yes	No

FORM H

b. Student laboratory work table	Yes		No
1) Number required	________		
2) Provision for storage	Yes		No
3) Provision for gas outlets	Yes		No
4) Provision for electric outlets	Yes		No
5) Provisions for water supply	Yes		No
6) Provisions for sink	Yes		No
7) Adjustable chair at student work tables	Yes		No
8) Other provisions (specify)			
a) ________	Yes		No
b) ________	Yes		No
c. Incubation equipment	P	A	NA
Bacteriological incubator	Yes		No
Number required	________		
d. Drying equipment (histological slides)	P	A	NA
Number required	________		
e. Centrifuge equipment	P	A	NA
1) Ultra centrifuge (refrigerated)	Yes		No
Number required	________		
2) Bench type clinical centrifuge (parasitology and serology)	Yes		No
Number required	________		
3) Microtechnique centrifuge (Hematological)	Yes		No
Number needed	________		
f. Weighing equipment	P	A	NA
1) Analytical balances	Yes		No
Number needed	________		
2) Animal scales	Yes		No
Number needed	________		
g. Blood and serological testing instruments	P	A	NA
1) Gas chromatograph	Yes		No
Number required	________		
2) Colorimeter	Yes		No
Number required	________		
3) Water bath	Yes		No
Number required	________		
4) Unitest kit	Yes		No
Number required	________		
5) Prothrombin analyzer	Yes		No
Number required	________		
6) Auto-analyzer	Yes		No
Number required	________		
7) Coulter particle counter	Yes		No
8) Pipette shaker	Yes		No
h. Histological fixing and staining equipment	P	A	NA
1) Microtome	Yes		No
Number required	________		
2) Microtome blade sharpener (automatic)	Yes		No
Number required	________		
3) Equipment for hand fixing and staining tissues	Yes		No
Number required	________		
4) Autoechnicon	Yes		No

	Number required	____		
5)	Parafin melting oven	Yes		No
	Number required	____		
i.	Mounted specimen and slide storage furniture	P	A	NA
1)	Microscopic tissue slide cabinet (student prepared)	Yes		No
2)	Microscopic slide cabinet (teacher demonstration)	Yes		No
3)	Mounted specimen storage cabinet	Yes		No
j.	Bacteriological and serological media preparation and refrigeration equipment	P	A	NA
1)	Storage cabinets	Yes		No
	Size and/or number needed	____		
2)	Automatic pipetter	Yes		No
3)	Media preparation counter space	Yes		No
	Linear feet	____		
4)	Sink with drainboard	Yes		No
5)	Electrical utility provision	Yes		No
6)	Combination refrigerator-freezer	Yes		No
7)	Lyophilizing apparatus	Yes		No
k.	Glassware cleaning and sanitizing equipment	P	A	NA
1)	Automatic glassware washer	Yes		No
2)	Glassware dryer	Yes		No
3)	Sink for handwashing of glassware, etc.	Yes		No
4)	Pipette washer and dryer	Yes		No
5)	Storage cabinets for glassware	Yes		No
	Size and/or number needed	____		

l. Other equipment required for clinical testing and analysis laboratory area(s) are:

1) ____________________
2) ____________________
3) ____________________
4) ____________________

6. Environmental factors

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the clinical testing and analysis laboratory area(s).

____

____

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the clinical testing and analysis laboratory area(s).

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FORM H

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the clinical testing and analysis laboratory area(s).

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d. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for the clinical testing and analysis laboratory area(s).

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e. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special consideration important to the planning of the clinical testing and analysis laboratory area(s).

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7. Vertical instructional surfaces

a. Chalkboard	Yes		No
1) Wall mounted	P	A	NA
Number of lineal feet	______		
2) Portable	P	A	NA
a) Number of lineal feet	______		
b) Provision for storage	Yes		No
b. Tackboard	Yes		No
Number of lineal feet	______		
c. Pegboard	Yes		No
Number of lineal feet	______		
d. Permanent projection screen	P	A	NA

8. Special utility services required

a. Electricity		
1) 110V AC	Yes	No
2) 220V AC	Yes	No

3) Special lighting requirements (specify)
a) ______________________
b) ______________________
c) ______________________
d) ______________________

FORM H

4) Electrical needs for other equipment (specify)
a) ______________________________
b) ______________________________
c) ______________________________
d) ______________________________

b. Gas
1) Instructor and student work table outlets Yes No
2) Other equipment using natural gas
a) ______________________________
b) ______________________________

c. Water
1) Sinks Yes No
2) Garbage disposer Yes No
3) Supplied to distiller apparatus Yes No
4) Other (specify)
____

9. Minimum space requirements in square feet

a. Floor area in square feet for entire clinical testing and analysis laboratory area(s) ______________________________

b. If distinct space divisions are desired according to function, give minimum floor area requirements in square feet for each of the following areas if included in desired program.
1) Student laboratory work area __________
2) Teacher demonstration-lecture area __________
3) Incubation and drying area __________
4) Centrifuge area __________
5) Weighing area __________
6) Blood and serological testing area __________
7) Histological fixing and staining area __________
8) Histological specimen storage area __________
9) ______________________________ __________
10) ______________________________ __________

c. If distinct divisions are desired as separate space from main laboratory area, give minimum floor area requirements in square feet for each of the following areas if included in desired program.
1) Bacteriological and serological preparation and refrigeration area __________
2) Glassware cleaning and sanitizing area __________
3) ______________________________ __________

10. Other important factors to be considered in the planning of the clinical testing and analysis laboratory area(s) are:
____
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____
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FORM I

DESCRIPTION OF BASIC VETERINARY SCIENCES LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The basic veterinary sciences laboratory area(s) should be planned:

a.	As independent unit(s)	Yes	No
b.	In combination with __________ laboratory area(s) (specify)	Yes	No
c.	In combination with seminar area(s)	Yes	No
d.	In combination with lecture/demonstration area(s)	Yes	No
e.	As an area within a single multi-purpose space	Yes	No

2. Student capacity required for scheduled activities (see Form E). __________

3. Student and instructor activities in various space divisions within the basic veterinary sciences laboratory area(s). Indicate the extent to which each activity will occur.

a.	Student laboratory work stations with storage space					
1)	Dissection of specially prepared animal cadavers	1	2	3	N	
2)	Microscopic study of normal animal tissue	1	2	3	N	
3)	Study of physiological functions in live and/or anesthetized animals	1	2	3	N	
4)	Physiological tests (chemical) on animal body fluids	1	2	3	N	
5)	Necropsy of small laboratory animals	1	2	3	N	
6)	Microscopic study of pathological animal tissues	1	2	3	N	
7)	Removal of animal tissue specimens for clinical testing	1	2	3	N	
b.	Teacher demonstration-lecture space					
1)	Demonstrating the typical prepared biological specimens, microscopic slides, and demonstration models	1	2	3	N	
2)	Demonstrating the preparation and collection of pathological animal tissues for further diagnosis	1	2	3	N	
3)	Lecturing on the applied basis of anatomy and histology	1	2	3	N	
4)	Lecturing on the applied basis of physiology	1	2	3	N	

FORM I

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

5) Lecturing on the applied basis of pathology	1 2 3 N
c. Large animal necropsy space	
1) Necropsy of dead or diseased sacrificed animals	1 2 3 N
2) Refrigerated storage of cadavers and/or tissue specimens for further study or testing	1 2 3 N
3) Area separate from main laboratory space	Yes No
d. Physiological monitoring space	
1) Electronic and graphic monitoring of basic physiological parameters	1 2 3 N
2) Graphic measurement of basal metabolic rate	1 2 3 N
3) Demonstration of separation of colloids and crystalloids as occurs in animal tissues	1 2 3 N
e. Skeleton and museum exhibit space	
1) Demonstration of comparative anatomy of various animal species	1 2 3 N
2) Demonstration of various gross pathological specimens	1 2 3 N
f. Prepared histological specimen storage space	1 2 3 N
g. Student equipment and instrument clean-up space	
1) Washing and drying of dissection trays, necropsy boards (small animals) and instruments	1 2 3 N
2) Flushing animal cadavers of blood for better observation and study	1 2 3 N
3) Storage of student work trays, necropsy boards, and other instructional equipment	1 2 3 N
h. Other space(s) (specify)	
1) ____________________________________	1 2 3 N
2) ____________________________________	1 2 3 N
3) ____________________________________	1 2 3 N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the basic veterinary sciences laboratory area(s)	
Student laboratory workspaces to:	
a) Teacher demonstration-lecture space	1 2 3 N
b) Large animal necropsy space	1 2 3 N

FORM I

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

c) Physiological monitoring space	1	2	3	N
d) Skeleton and museum exhibit space	1	2	3	N
e) Prepared histological specimen storage space	1	2	3	N
f) Student equipment and instrument clean-up space	1	2	3	N
g) Other space(s) (specify)				
______________________	1	2	3	N
______________________	1	2	3	N
b. Basic veterinary sciences laboratory area(s) to outside related areas:				
1) Clinical testing and analysis laboratory	1	2	3	N
2) Instructional materials center	1	2	3	N
3) Cleaning and sanitizing of glassware area	1	2	3	N
4) Sterilization area	1	2	3	N
5) Animal vivarium	1	2	3	N
6) Student locker and restroom	1	2	3	N
7) Building entrance	1	2	3	N
8) Delivery area	1	2	3	N
9) Other instructional areas	1	2	3	N
10) Necropsy unloading ramp area	1	2	3	N
11) Other building areas (specify)	1	2	3	N
a) ______________________	1	2	3	N
b) ______________________	1	2	3	N

5. Furniture and equipment

a. Teacher-demonstration-lecture table	P	A	NA
1) Provision for storage	Yes		No
2) Provision for gas outlets	Yes		No
3) Provision for electrical outlets	Yes		No
4) Provision for water supply	Yes		No
5) Provision for sink	Yes		No
6) Other provisions (specify)			
a) ______________________	Yes		No
b) ______________________	Yes		No
b. Student laboratory work table	P	A	NA
1) Number required	______	______	______
2) Provision for storage	Yes		No
3) Provision for gas outlets	Yes		No
4) Provision for electric outlets	Yes		No
5) Provision for water supply	Yes		No
6) Provisions for sink	Yes		No
7) Adjustable chairs at student work tables	Yes		No
8) Other provisions (specify)			
a) ______________________	Yes		No
b) ______________________	Yes		No

FORM I

c.	Equipment for large animal necropsy area	P	A	NA
1)	Hydraulic adjustable necropsy table	Yes		No
	Number required			
2)	Electrically operated overhead hoist	Yes		No
	Number required			
3)	Walk in refrigerator box or room	Yes		No
	Specify size or capacity			
4)	Counter work table with water utility, sink and drainboard	Yes		No
	Lineal feet required			
5)	Knife sharpening hone	Yes		No
	Number required			
6)	Band saw	Yes		No
7)	Necropsy equipment storage cabinet	Yes		No
8)	Water hose station	Yes		No
a)	Number needed			
b)	Cold water	Yes		No
c)	Warm water	Yes		No
d)	Steam	Yes		No
d.	Physiological monitoring equipment	P	A	NA
1)	Physiograph machine	Yes		No
	Number required			
2)	Basal metabolism apparatus	Yes		No
3)	Multiple dialyzing instrument	Yes		No
	Number required			
e.	Furniture for exhibit of skeletons and museum specimens	P	A	NA
1)	Glass cased cabinets	Yes		No
	Lineal feet required			
2)	Open shelving	Yes		No
	Lineal feet required			
3)	Closed cabinets	Yes		No
	Lineal feet required			
f.	Furniture for histological slide storage	P	A	NA
	Cabinet-tray type storage	Yes		No
	Number cabinets needed			
g.	Clean-up area equipment	P	A	NA
	Two compartment sink with drainboard	Yes		No
a)	Number required			
b)	Hot and cold water utility	P	A	NA
h.	Instructional equipment storage provision	P	A	NA

i. Other equipment required for the basic veterinary sciences laboratory area(s) are:

1) ______________________________
2) ______________________________
3) ______________________________
4) ______________________________

6. Environmental factors

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style or architecture, design and the like. Indicate any special aesthetic

FORM I

considerations important to the planning of the basic veterinary sciences laboratory area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the basic veterinary sciences laboratory area(s).

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the basic veterinary sciences laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special consideration important to the planning of the lecture/demonstration area(s).

e. Safety In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for the basic veterinary sciences laboratory area(s).

7. Vertical instructional surfaces

a. Chalkboard	Yes		No
1) Wall mounted	P	A	NA
Number of lineal feet			
2) Portable	P	A	NA
a) Number of lineal feet			
b) Provision for storage	Yes		No
b. Tackboard	Yes		No
Number of lineal feet			
c. Pegboard	Yes		No
Number of lineal feet			
d. Permanent projection screen	Yes		No

FORM I

8. Special utility services required

    a. Electricity
        1) 110V AC — Yes No
        2) 220V AC — Yes No
        3) Special lighting requirements (specify)
            a) ____________________
            b) ____________________
            c) ____________________
            d) ____________________
        4) Electrical needs for other equipment (specify)
            a) ____________________
            b) ____________________
            c) ____________________
            d) ____________________

    b. Gas
        1) Instructor demonstrator-lecture table outlets — Yes No
        2) Other equipment using gas
            a) ____________________
            b) ____________________

    c. Water
        1) Sinks — Yes No
        2) Hose stations--necropsy area — Yes No
        3) Other (specify)
            ____

    d. Closed circuit television outlet — Yes No
        Number required ________

9. Minimum space requirements in square feet

    a. Floor area in square feet for entire basic veterinary sciences laboratory area(s) ________

    b. If distinct space divisions are desired according to function, give minimum floor area requirements in square feet for each of the following areas if included in desired program:
        1) Student laboratory work area ________
        2) Teacher demonstration-lecture area ________
        3) Large animal necropsy area ________
        4) Physiological monitoring area ________
        5) Skeleton and museum exhibit area ________
        6) Histological specimen storage area ________
        7) Student equipment and instrument clean-up area ________
        8) ____________________ ________
        9) ____________________ ________

    c. If distinct divisions are desired as separate space from main laboratory area, give minimum floor area requirements in square feet for each of the following areas if included in desired program.

1) Large animal necropsy area ________
2) Cadaver and specimen refrigerated area ________
3) ________________________ ________

10. Other important factors to be considered in the planning of the basic veterinary sciences laboratory area(s) are:

FORM J

DESCRIPTION OF ANIMAL CARE LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The animal care laboratory area(s) should be planned:

a. As independent unit(s)	Yes	No
b. In combination with ___________ laboratory area(s) (specify)	Yes	No
c. In combination with seminar area(s)	Yes	No
d. In combination with lecture/demonstration area(s)	Yes	No
e. As an area within a single multi-purpose space	Yes	No

2. Student capacity required for scheduled activities (see Form E). ___________

3. Student and instructor activities in various space divisions within the animal care laboratory area(s). Indicate the extent to which each activity will occur.

a. Student laboratory work stations

1) Practice handling of the small species of laboratory animals to learn humane and efficient restraint and manipulation	1	2	3	N
2) Practice learning of sexing the various laboratory animal species	1	2	3	N
3) Learning and practicing the routes and techniques of laboratory animal innoculation for research purposes	1	2	3	N
4) Learning to do routine physical examinations on laboratory animals	1	2	3	N
5) Complete construction of isolator equipment for developing basic proficiencies in axenic and gnotobiotic techniques	1	2	3	N
6) Practicing techniques involved in receipt or shipment of laboratory animals	1	2	3	N
7) Practicing methods used in identification of the smaller laboratory animals	1	2	3	N
8) Learning and practicing various biological tests such as:				
a) Estrus determination by the vaginal swag technique	1	2	3	N
b) A-Z pregnancy test procedure	1	2	3	N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

9) Learning and practicing various specialized laboratory animal research procedures such as:				
a) Intraorbital bleeding (for hematological analysis)	1	2	3	N
b) Bleeding from the tail (rats and mice)	1	2	3	N
c) Transference of tumors (tumor implantation)	1	2	3	N
d) Endocrinectomies	1	2	3	N
10) Learning and practicing the administration of anesthesia to laboratory animals	1	2	3	N
b. Teacher demonstration-lecture area(s)				
1) Lecture presentation and outlining of the techniques and procedures to be practiced by each student in the laboratory	1	2	3	N
2) Demonstration of the various caging and equipment utilized in the animal care field	1	2	3	N
3) Demonstration of how to correctly handle and sex all the laboratory animals species	1	2	3	N
4) Demonstration of instruments and techniques of laboratory animal innoculation	1	2	3	N
5) Demonstration of records keeping systems for laboratory animals	1	2	3	N
6) Demonstration of small laboratory animal identification methods	1	2	3	N
7) Demonstration of the proper methods of carrying out specialized biological tests and bio-medical research procedures	1	2	3	N
8) Demonstration of anesthetic methods in laboratory animals	1	2	3	N
c. Peripheral multi-purpose work space area(s) (bench type)				
1) Electronic balance weighing of laboratory animals	1	2	3	N
2) Incubation of eggs for embryological and experimental purposes	1	2	3	N
3) Preparing and centrifuging specimens from laboratory animals for parasitological examination	1	2	3	N
4) Preparing and staining of biological tissues, blood, and bacteria from laboratory animals for microscopic examination	1	2	3	N

FORM J

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

5) Examination of external parasites from laboratory animals 1 2 3 N
6) Refrigeration and/or freezing of biological material for continued or later study 1 2 3 N
7) Performing microanalysis of blood samples from laboratory animals at location (rather than transferring to the clinical testing laboratory) 1 2 3 N
8) Steam or boiling water sterilization of surgical instruments 1 2 3 N

d. Germ-free production and holding area(s)
1) Derivement of the axenic animal state from the conventional laboratory animal 1 2 3 N
2) Rearing and holding of the derived germ-free animal for an extended time 1 2 3 N
3) Demonstration of the techniques involved in the feeding, cleaning and caring for axenic animals 1 2 3 N
4) Demonstration of the preparation of isolator supplies 1 2 3 N
5) Outlining procedures involved in monitoring the germ-free state and problems involved in the shipment of germ-free laboratory animals 1 2 3 N
6) Demonstrating experimental procedures completed on germ-free animals from within the axenic isolator 1 2 3 N

e. Laboratory animal operating and restraint area (for use with larger lab animals--rabbits, dogs, cats, primates)
1) Demonstration of tattooing for animal identification 1 2 3 N
2) Performing and practicing surgical procedures peculiar to laboratory animal research 1 2 3 N
3) Restraining and examining animals for evidence of disease or external parasitism 1 2 3 N
4) Restraining animals for administration of necessary medications 1 2 3 N
5) Restraining primates for tuberculosis testing and bleeding; other species for donor bleeding 1 2 3 N
6) Performance of cesarean sections on the larger lab animals (dog, cat, rabbit) to derive germ-free offspring 1 2 3 N
7) Demonstration of proper laboratory animal necropsy techniques as performed in biomedical research 1 2 3 N
8) Student practice of the necropsy technique 1 2 3 N

FORM J

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

f. Animal care storage space area(s)				
1) Storage of animal caging and allied equipment to be demonstrated	1	2	3	N
2) Storage of instruments and equipment for lab animal restraint, tattooing, innoculation and medication	1	2	3	N
3) Storage of chemicals and supplies needed for performing biological tests	1	2	3	N
4) Storage of miscellaneous equipment and materials needed in assembling and operating the germ-free isolators	1	2	3	N
5) Storage of surgical instruments--students and instructors	1	2	3	N
6) Storage of microscopic slides prepared by students in running biological tests	1	2	3	N
g. Other space(s) (specify)				
1) ______________________________	1	2	3	N
2) ______________________________	1	2	3	N
3) ______________________________	1	2	3	N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the animal care laboratory area(s)	1	2	3	N
Student laboratory work spaces to:				
a) Teacher demonstration-lecture space	1	2	3	N
b) Peripheral multi-purpose work space	1	2	3	N
c) Germ free production and holding space	1	2	3	N
d) Laboratory animal operating and restraint space	1	2	3	N
e) Animal care storage space	1	2	3	N
f) Other space(s) (specify)				
______________________________	1	2	3	N
______________________________	1	2	3	N
b. Animal care laboratory area(s) to outside related areas				
1) Clinical testing and analysis laboratory	1	2	3	N
2) Basic veterinary sciences laboratory	1	2	3	N
3) Clinical and hospital management laboratory (sterilization area)	1	2	3	N
4) Cleaning and sanitizing of glassware area	1	2	3	N
5) Instructional materials center	1	2	3	N
6) Animal vivarium	1	2	3	N
7) Student locker and restroom	1	2	3	N
8) Cage and equipment cleaning area	1	2	3	N
9) Building entrance	1	2	3	N
10) Delivery area	1	2	3	N

FORM J

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

11)	Other instructional area(s)	1 2 3 N
12)	Other building areas (specify)	
a)	________________________	1 2 3 N
b)	________________________	1 2 3 N
5.	Furniture and equipment	
a.	Student laboratory work table	Yes No
1)	Movable type	P A NA
2)	Stationary type	P A NA
3)	Number required	________
4)	Size required	________
5)	Adjustable chairs at student work table stations	Yes No
	Number required	________
6)	Other provisions (specify)	
a)	________________________	Yes No
b)	________________________	Yes No
b.	Teacher demonstration-lecture table	Yes No
1)	Provision for lecturn	Yes No
2)	Movable type	P A NA
3)	Stationary type	P A NA
4)	Provision for gas outlets	Yes No
5)	Provision for electrical outlets	Yes No
6)	Provision for water supply and sink	Yes No
7)	Size table required	________
8)	Provisions for storage	Yes No
9)	Other provisions (specify)	
a)	________________________	Yes No
b)	________________________	Yes No
c.	Peripheral multi-purpose work space	P A NA
1)	Bench or counter space along wall	P A NA
2)	Adjustable height chairs or stools for counter work	Yes No
3)	Cabinet storage space overhead and under counter space (for microscope storage, etc.)	P A NA
4)	Electronic balance weighing scales--measuring in grams	Yes No
	Number required	________
5)	Egg incubator and brooder	Yes No
	Indicate size or capacity	________
6)	Bench type centrifuge (parasitological)	Yes No
	Number required	________
7)	Sink with drainboard area, including hot and cold water for slide staining and general wash up	Yes No
8)	Dissecting microscope	Yes No
	Number required	________

FORM J

9)	Refrigerator and freezer combination	Yes		No
	Capacity required	________		
10)	Analytical scale	Yes		No
	Number required	________		
11)	Microhematocrit centrifuge	Yes		No
	Number required	________		
12)	Unitest hematological equipment	Yes		No
	Number of units required	________		
13)	Boiling water or steam instrument sterilizer	Yes		No
	Number required	________		
14)	Microscope	Yes		No
a)	Binocular	P	A	NA
b)	Monocular	P	A	NA
c)	Number required	________		
d.	Germ free production and holding area			
1)	Surgical insolator	Yes		No
a)	Flexible plastic film	P	A	NA
b)	Plexiglass	P	A	NA
c)	Stainless steel	P	A	NA
2)	Maintenance isolator	Yes		No
a)	Flexible plastic film	P	A	NA
b)	Plexiglass	P	A	NA
c)	Stainless steel	P	A	NA
3)	Laminar flow work table or cabinet for gnotobiote handling	Yes		No
4)	Electro-thermoplastic heat sealing machine	Yes		No
5)	Isolator transfer sleeves, stainless steel	Yes		No
6)	Storage cabinets for axenic equipment, tools, and supplies	Yes		No
	Size of cabinet required	________		
e.	Laboratory animal operating and restraint area			
1)	Hydraulic controlled operating table	Yes		No
a)	Stainless steel	P	A	NA
b)	Number required	________		
2)	Examining and grooming table	Yes		No
a)	Baked enamel	P	A	NA
b)	Stainless steel	P	A	NA
c)	Number required	________		
3)	Autopsy table--with strainers, cold water, source, and drain	Yes		No
a)	Chrome	P	A	NA
b)	Stainless steel	P	A	NA
c)	Number required	________		
4)	Dog, cat, and rabbit tattoo machine	Yes		No
5)	Anesthesia and euthanasia chamber (glass)	Yes		No
6)	Animal stretcher	Yes		No
a)	Chrome	P	A	NA
b)	Stainless steel	P	A	NA
c)	Number required	________		

7) Instrument stand (operating) Yes No
a) Number required ________
b) Stainless steel P A NA

f. Animal care storage space area
1) Storage for animal care cages and equipment Yes No
a) Separate room P A NA
Size needed ________
b) Storage cabinets P A NA
Size and/or number required ________
2) Instrument and/or drug cabinet Yes No
a) Number required ________
b) Size cabinet required ________
c) Movable cabinet P A NA
d) Stationary cabinet P A NA
3) Chemical and animal care supplies storage Yes No
a) Separate room P A NA
Size required ________
b) Cabinet storage P A NA
Number and/or size required ________

g. Other furniture or major equipment needs for the animal care laboratory area(s) are:
1) ________________
2) ________________
3) ________________
4) ________________

6. Environmental factors

a. Aesthetic. Factors to be considered in the aesthetic domain are color, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the animal care laboratory area(s).

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____
____

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the animal care laboratory area(s).

____
____
____

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the animal care laboratory area(s).

____
____
____

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound system. Indicate any special considerations important to the planning of the animal care laboratory area(s).

____
____
____

e. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the animal care laboratory area(s).

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7. Vertical instructional surfaces

a. Chalkboard — Yes No
    1) Wall-mounted — *P* *A* *NA*
        Number of lineal feet ______
    2) Portable — P A NA
        a) Number of lineal feet ______
        b) Provision for storage — Yes No
b. Tackboard — Yes No
    Number of lineal feet ______
c. Pegboard — Yes No
    Number of lineal feet ______
d. Permanent projection screen — Yes No

8. Special utility services required

a. Electricity
    1) 110V AC — Yes No
    2) 220V AC — Yes No
    3) Special lighting requirements (specify)
        a) ______________________
        b) ______________________
        c) ______________________
    4) Electrical needs for other equipment (specify)
        a) ______________________
        b) ______________________
        c) ______________________
        d) ______________________
b. Gas
    1) Peripheral multi-purpose work space area outlets — Yes No

FORM J

2) Other equipment using gas
a) ______________________________
b) ______________________________

c. Water
1) Sinks Yes No
2) Connections to necropsy tables Yes No
3) Other (specify) ____________________ Yes No

d. Closed circuit television outlet Yes No
Number required __________

9. Minimum floor areas required in square feet

a. Floor area in square feet for the entire animal care laboratory area(s) __________

b. If distinct space divisions are desired according to function, give minimum floor area requirement in square feet for each of the following areas, if included in the desired program.
1) Student laboratory work station area __________
2) Teacher demonstration-lecture area __________
3) Peripheral multi-purpose workspace area __________
4) Germ free production and holding area __________
5) Lab animal operating and restraint area __________
6) Animal care storage space area __________
7) ______________________________ __________
8) ______________________________ __________

c. If distinct divisions are desired as separate space from the main laboratory area, give minimum floor area requirements in square feet for each of the following areas, if included in the desired program.
1) Germ free production and holding area __________
2) Animal care storage space area __________
3) ______________________________ __________

10. Other pertinent factors to be considered in the planning of the animal care laboratory area(s) are:

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FORM K

DESCRIPTION OF THE VETERINARY CLINICAL AND HOSPITAL MANAGEMENT LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The veterinary clinical and hospital management laboratory area(s) should be planned:

a. As independent unit(s)	Yes	No
b. In combination with __________ laboratory area(s) (specify)	Yes	No
c. In combination with lecture/demonstration area(s)	Yes	No
d. In combination with seminar area(s)	Yes	No
e. As an area within a single multi-purpose space	Yes	No

2. Student capacity required for scheduled activities (see Form E). __________

3. Student and instructor activities within the veterinary clinical and hospital management laboratory area(s). Indicate the extent to which each activity will occur.

a. Reception room area				
1) Reception of client/patients	1	2	3	N
2) Helping keep client/patients comfortable while waiting for doctor--keeping them separated	1	2	3	N
3) Filing and keeping medical history records on client/patients	1	2	3	N
4) Filing and keeping financial records on client/patients	1	2	3	N
5) Taking and giving information properly by telephone	1	2	3	N
6) Booking hospital or outpatient appointments	1	2	3	N
7) Sending out financial statements to clients	1	2	3	N
8) Paying hospital operating bills when received	1	2	3	N
9) Handling incoming mail and sending out general correspondence	1	2	3	N
10) Coordination, via intercommunications system of total hospital and outpatient clinic	1	2	3	N
11) Dispensing of various pet supplies or equipment	1	2	3	N
12) Admittance of animals to be boarded	1	2	3	N
b. Examination and treatment room area				
1) Recording of patient medical history	1	2	3	N

FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

   - 2) Examination of patients for any sickness or physical abnormality 1 2 3 N
   - 3) Medical treatment of all hospital outpatients 1 2 3 N
   - 4) Admittance to hospital of all patients requiring surgery or hospitalization 1 2 3 N
   - 5) Clipping hair from wounds, tumors, etc. to allow for easier treatment or more specific diagnosis 1 2 3 N
   - 6) Performing skin scrapings and various bacteriological cultures for diagnosis of specific causes of eczema or persistent external body infections 1 2 3 N
   - 7) Performing minor surgery on hospital outpatients 1 2 3 N
   - 8) Writing prescriptions of drugs to be dispensed by the pharmacy for follow-up treatment of patient at home 1 2 3 N
   - 9) Cleaning tartar from animal patient's teeth with dental instruments or the "cavitron" 1 2 3 N
   - 10) Administration of intravenous solutions 1 2 3 N
- c. Pharmacy area
   - 1) Mixing and compounding of certain basic or specialized medications 1 2 3 N
   - 2) Dispensing stock drug items as per prescription to clients or treatment room personnel 1 2 3 N
   - 3) Storing, stocking and labeling all drugs in a systematic manner 1 2 3 N
   - 4) Performing periodic and annual inventory of all drugs and pharmaceuticals 1 2 3 N
   - 5) Ordering of drugs so as to maintain a proper stock level and yet gain maximum buying discounts 1 2 3 N
   - 6) Exercising strict security and inventory of all narcotic and narcotic type drugs 1 2 3 N
   - 7) Distillation of tap water for use in compounding liquid drugs 1 2 3 N
- d. Sterilization area
   - 1) Washing and drying of clothing and instruments following surgical operations 1 2 3 N
   - 2) Preparing surgical packs and instruments for autoclaving or other sterilization methods 1 2 3 N
   - 3) Autoclaving (steam sterilization) of gowns, surgical packs and instruments 1 2 3 N

FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

4) Sterilization of equipment by boiling water sterilizer 1 2 3 N
5) Dry heat sterilization of equipment and/or supplies 1 2 3 N
6) Sterilization of supplies and/or equipment by use of ethylene oxide gas 1 2 3 N
7) Storage of sterilized goods and equipment until needed 1 2 3 N
8) Storage of stock instruments, washing and cleaning supplies, etc. 1 2 3 N

e. Surgical preparation area(s)
  1) Operator and assistants
    a) Sanitizing scrub of hands and arms for surgery 1 2 3 N
    b) Bathing arms and hands in germicidal solution before donning sterile gowns 1 2 3 N
    c) Donning cap, mask, gown and gloves in appropriate order according to aseptic technique 1 2 3 N
  2) Animal patients
    a) Clipping hair from operative sites 1 2 3 N
    b) Antiseptic soap and water scrub of operative sites 1 2 3 N
    c) Ether followed by alcohol scrub of operative sites 1 2 3 N
    d) Painting of operative site with an antiseptic solution such as tamed iodine or merthiolate 1 2 3 N
    e) Anesthetizing the patient to desired plane for surgery to be performed 1 2 3 N
    f) Administration of preanesthetic agents as need indicates 1 2 3 N
    g) Manual expression of the patient's bladder to remove any urine present 1 2 3 N
    h) Complete body hair clipping of dogs as indicated by breed and contemporary styling 1 2 3 N
    i) Administering of enemas to hospital or outpatients when desired 1 2 3 N
    j) Administering whirlpool baths to paraplegic animals for therapy 1 2 3 N
    k) Weighing pet animals for estimating anesthetic dosage 1 2 3 N

f. Surgical area
  1) Performance of routine surgical operations or procedures by professional instructors 1 2 3 N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

2) Student practice in assisting the operator 1 2 3 N
3) Use of electrocautery in demonstrating surgical procedures 1 2 3 N
4) Monitoring and continuation of anesthesia (injectable type anesthetics) 1 2 3 N
5) Demonstration of electro-anesthesia for surgical procedures 1 2 3 N
6) Administration of inhalation type anesthetic throughout surgical procedures 1 2 3 N
7) Administration of suction apparatus during surgical procedures 1 2 3 N
8) Administration of emergency procedures during surgery, such as oxygen therapy, anesthetic antidotes, etc. 1 2 3 N
9) Administration of medications or biologicals immediately following surgery 1 2 3 N
10) Chemical sterilization and storage of catgut and cutting instruments used in surgery 1 2 3 N
11) Short time storage of sterilized surgical packs, gowns and instruments which are then available for immediate or emergency use 1 2 3 N
12) Administration of blood transfusion or intravenous electrolyte solutions
13) Closed circuit television or video taping of surgical procedures and assisting for student viewing and study 1 2 3 N
14) Viewing of radiological films before or during surgery 1 2 3 N
15) Small group study of surgical assisting methods, techniques and surgical instruments using surgery room black board and surgical instrument display panel cabinet 1 2 3 N

g. Radiology laboratory area
  1) Exposure area
    a) Demonstrating of positioning of patients for variously desired radiograms 1 2 3 N
    b) Demonstrating proper exposure requirements as to KVP and time settings needed to secure radiograms of diagnostic quality 1 2 3 N
    c) Student practice in both positioning and taking radiographic

FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

exposure of different laboratory and pet animals	1 2 3 N
d) Instruction in the hazards of handling radiological equipment including the monitoring of student exposure with personal radiological monitoring badges	1 2 3 N
2) Film processing area	
a) Developing, fixing, and washing of exposed films	1 2 3 N
b) Drying and viewing of processed films	1 2 3 N
c) Identification and storage of processed film	1 2 3 N
d) Demonstrating proper "safelight" and dark room techniques	1 2 3 N
e) Demonstrating proper handling of unexposed radiological film, including loading of cassettes	1 2 3 N
f) Storage of x-ray film processing supplies and miscellaneous equipment	1 2 3 N
h. Recovery ward	
1) Temporary housing of surgical patients for close observation until their recovery from anesthesia	1 2 3 N
2) Intensive nursing care when needed, such as: oxygen tent, controlled temperature environment, blood or fluid transfusions by continuous I.V. drip, etc.	1 2 3 N
3) Administering special diets for special surgical cases	1 2 3 N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the veterinary clinical and hospital management laboratory area(s)	
1) Surgical area work space to:	
a) Surgical preparation space	1 2 3 N
b) Sterilization space	1 2 3 N
c) Radiology lab space	1 2 3 N
d) Recovery ward space	1 2 3 N
e) Reception room space	1 2 3 N
f) Other space(s) (specify)	
______________________________	1 2 3 N
______________________________	1 2 3 N

FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

2) Reception room space to:				
a) Examination and treatment room space(s)	1	2	3	N
Two examination rooms desired	P	A		NA
b) Pharmacy space	1	2	3	N
c) Recovery ward	1	2	3	N
b. Veterinary clinical and hospital management laboratory area(s) to outside related areas:				
1) Clinical testing and analysis laboratory	1	2	3	N
2) Basic veterinary sciences laboratory (large animal necropsy space)	1	2	3	N
3) Instructional materials center	1	2	3	N
4) Animal vivarium	1	2	3	N
5) Student locker and restroom	1	2	3	N
6) Building entrance	1	2	3	N
7) Delivery area	1	2	3	N
8) Parking area	1	2	3	N
9) Other instructional area(s)	1	2	3	N
10) Other building areas (specify)				
a) ________________________________	1	2	3	N
b) ________________________________	1	2	3	N

5. Furniture and equipment

a. Reception room area				
1) Waiting room chairs	Yes			No
a) Cloth upholstered	P	A		NA
b) Vinyl plastic covered	P	A		NA
c) Number required	__________			
2) Waiting room couch(es) or divan(s)	Yes			No
a) Vinyl plastic covered	P	A		NA
b) Cloth upholstered	P	A		NA
c) Number required	__________			
3) Receptacle for discarded cigarettes and ashes	Yes			No
Number required	__________			
4) Secretary's desk with typewriter	Yes			No
5) Filing cabinet(s) (conventional)	Yes			No
a) Number required	__________			
b) Size desired	__________			
6) Circular file	Yes			No
7) Dictaphone	Yes			No
8) Hospital intercom system control board	Yes			No
9) Two-way radio transmitter and receiver	Yes			No
10) Message recorder machine (telephone company)	Yes			No

FORM K

11)	Table or stand to hold the two-way radio, message recorder, and photocopy machine	Yes No
	Size table needed	______
12)	Photocopy machine	Yes No
13)	Pet supplies rack or display case	Yes No
	Size desired	______
14)	End tables	Yes No
	Number desired	______
15)	Wall and floor lamps	Yes No
	Number desired	______
16)	Magazine racks	Yes No
	a) Floor type	P A NA
	b) Wall type	P A NA
	c) Number required	______
17)	Flower planters	Yes No
	a) Number desired	______
	b) Size desired	______
18)	Aquarium	Yes No
	Size desired	______
19)	Coffee dispenser	Yes No
20)	High frequency record player	Yes No
21)	Coat and hat rack	Yes No
	a) Wall type	P A NA
	b) Floor type	P A NA
22)	Other equipment (specify) ______	Yes No

b. Treatment room area

1)	Wall mounted intercommunications receiver	Yes No
2)	Examination and grooming table	Yes No
	a) Baked enamel	P A NA
	b) Stainless steel	P A NA
3)	Dressing table (to hold all injectable medicines, gauze, tape, disinfectants, etc.	Yes No
	Size of table required	______
4)	Adjustable ceiling mounted examining room light	Yes No
5)	Refrigerator-freezer unit	Yes No
	Capacity required	______
6)	Animal clippers with overhead mounted retractable reel	Yes No
7)	Wall mounted, electrically operated combination ophthalmoscope-otoscope	Yes No
8)	Waste disposal receptacle	Yes No
9)	Bard-Parker chemical sterilization jar for cutting instruments	Yes No
10)	Syringe sterilizing jar	Yes No
11)	Cavitron (ultrasonic dental cleaning instrument)	Yes No
12)	Pass-through window to pharmacy	Yes No
13)	Pass-through window to reception room	Yes No
14)	Foot pedal operated sink, hot and cold water with mixing faucet	Yes No

FORM K

15) Storage cabinet for instruments and medical supplies	Yes		No
a) Size required	____		
b) Floor type	P	A	NA
c) Wall type	P	A	NA
16) Other equipment (specify) ____	Yes		No
c. Pharmacy area			
1) Refrigerator-freezer unit	Yes		No
Capacity required	____		
2) Storage area(s)	Yes		No
a) Wall shelving (floor to ceiling)	P	A	NA
Lineal feet required	____		
b) Closed cabinets	P	A	NA
Lineal feet required	____		
c) Glass door cabinets	P	A	NA
Lineal feet required	____		
d) Drug stock storage area	P	A	NA
Separate room from the regular drug dispensing area	Yes		No
3) Double security narcotics locker	Yes		No
4) Waring blender	Yes		No
5) Water distiller apparatus and demineralizer	Yes		No
6) Portable typewriter for typing drug labels when dispensing	Yes		No
7) Pass-through window to treatment room(s)	Yes		No
8) Pass-through window to reception room-secretarial area	Yes		No
9) Electronic balance scale for weighing in ounces	Yes		No
10) Analytical scale for weighing in grams and milligrams	Yes		No
11) Double drain sink with drainboard and mixing faucet	Yes		No
a) Enamel coated	P	A	NA
b) Stainless steel	P	A	NA
c) Disposal unit included	P	A	NA
d) Spray attachment included	P	A	NA
12) Hot plate with stirring mechanism	Yes		No
a) One burner	P	A	NA
b) Two burners	P	A	NA
13) Drug inventory file	Yes		No
14) Intercommunications unit--wall mounted	Yes		No
15) Other equipment (specify) ____	Yes		No
d. Sterilization area			
1) Washing machine	Yes		No
2) Clothes dryer	Yes		No
3) Iron and ironing board (or mangle)	Yes		No
4) Laundry type sink--double drain with drainboard and mixing faucet	Yes		No
5) Counter work space (for folding gowns, etc.)	Yes		No

a) Width counter needed	________
b) Lineal feet required	________
6) Storage cabinets for laundry supplies	Yes No
Size required	________
7) Cleaning and laundry area separate room from rest of sterilization area	P A NA
8) Autoclave	Yes No
a) With vacuum exhaust	P A NA
b) With adapter for ethylene oxide	P A NA
c) Gas sterilization	
(1) Capacity required	________
(2) Dimensions of door opening	________
9) Foot opening boiling water sterilizer	Yes No
Size required	________
10) Dry heat incubator and drying oven	Yes No
11) Storage for sterilized goods	Yes No
a) Wall shelving	P A NA
b) Lineal feet required	________
c) Glass door cabinets with shelving	P A NA
Size cabinets required	________
12) Reserve instrument storage cabinet	Yes No
Size required	________
13) Wall mounted intercommunications unit	Yes No
14) Other equipment (specify) ________	
e. Surgical preparation area(s)	
1) Operator and assistant operators	
a) Foot operated scrub sink, hot and cold water with mixing faucet	Yes No
Number required	________
b) Foot operated surgical soap dispensor	Yes No
Number required	________
c) Autoclavable scrub brush dispensor	Yes No
Number required	________
d) Waste receptacle	Yes No
e) Arm immersion tank for disinfectant bathing of hands and arms	Yes No
Number required	________
f) Clothes closet for storing surgical caps and face masks	Yes No
g) Disposable towel dispensor	Yes No
h) Separate area from animal "prep" area	Yes No
2) Animal "prep" area	
a) Adjustable (hydraulic) operating table	Yes No
(1) Stainless steel	P A NA
(2) Enamel finish	P A NA
b) Animal clippers with overhead mounted retractable reel	P A NA
c) Animal bathtub--mounted waist high	Yes No
(1) With stainless steel slotted cover	P A NA

FORM K

(2) Drainboard (for soap and water scrub and rinse) with hot and cold water mixing faucet and spray attachment	P	A	NA
d) Whirlpool bath apparatus	Yes		No
e) Shelf type animal scales weighing in ounces and pounds	P	A	NA
f) Floor, human type balance scales (for use in weighing animals to determine correct anesthetic dosages)	P	A	NA
g) Storage cabinet(s) for grooming, bathing and enema equipment and supplies	Yes		No
(1) Number required	________		
(2) Size required	________		
h) Medicine cabinet for syringes and injectable anesthetics and preanesthetics, etc.	Yes		No
i) Waste receptacle	Yes		No
j) Vacuum cleaner (for removing hair as it is clipped from animal)	Yes		No
k) Wall mounted intercommunications unit	Yes		No
l) Animal stretcher (for transporting anesthetized animals)	Yes		No
m) Animal dryer unit	Yes		No
n) Dressing cart (for holding cotton, gauze swabs, alcohol dispensor, other disinfectants, etc.)	Yes		No
o) Small refrigeration unit	Yes		No
p) Other equipment (specify) ____________________			
f. Surgical area			
1) Operating table(s)	Yes		No
a) Number required	________		
b) Hydraulic and adjustable	P	A	NA
c) Enamel finish	P	A	NA
d) Stainless steel	P	A	NA
2) Surgical lamp(s)	Yes		No
a) Number required	________		
b) Floor type	P	A	NA
c) Ceiling mounted	P	A	NA
d) Single	P	A	NA
e) Double	P	A	NA
f) Adjustable	P	A	NA
3) Kick bucket(s)	Yes		No
a) Number required	________		
b) Stainless steel	P	A	NA
4) Glass encased wall cabinets for storing sterilized packs and instruments	Yes		No
Lineal feet required	________		
5) Instrument stand(s)	Yes		No
Number required	________		

6) Bard-Parker chemical disinfectant tray (for cutting instruments) Yes No
7) Transfer forceps and sterilizer Yes No
8) "Blendtome" electrocautery apparatus Yes No
9) Inhalation anesthesia machine (Forregger) Yes No
10) Oxygen tanks with oxygen administration equipment Yes No
11) Electro-anesthesia machine Yes No
12) Suction apparatus Yes No
13) Small refrigerator unit (blood storage biologicals, etc.) Yes No
14) Dressing table, portable Yes No
15) Radiological film viewer, wall mounted Yes No
16) Glass enclosed master surgical instrument cabinet (instruments individually hung and identified on pegboard for student viewing and study) Yes No
    Size cabinet desired ____________
17) All tables, walls, equipment and floors to be completely electrically grounded if ether anesthesia is to be included in surgical instruction Yes No
18) Drug and anesthetic storage cabinet including narcotics locker Yes No
    Portable cabinet P A NA
19) Wall clock Yes No
20) Wall mounted intercommunications unit Yes No
21) Other equipment (specify)
    ______________________________ Yes No

g. Radiology laboratory area
1) Exposure area--separate from processing lab Yes No
    a) Fixed position x-ray machine and table Yes No
        (1) KV potential required ____________
        (2) Timing potential required ____________
        (3) Control box and activating switch mounted in separate area divided by leaded walls and windows Yes No
        (4) Fluoroscopic capability Yes No
        (5) Table equipped with a "Bucky" mechanism Yes No
    b) Wall hangers for leaded protective clothing (aprons and gloves) Yes No
        Number required ____________
    c) All walls of exposure room completely lined with approved thickness lead shielding Yes No
        If specifications differ from above so indicate ____________
    d) Pass-through box in wall between exposure room and film processing lab Yes No

FORM K

e)	Portable x-ray machine	Yes		No
	KV potential desired		________	
f)	Wall mounted intercommunications unit	Yes		No
g)	Film identification kit (for use when taking exposures)	Yes		No
h)	Leaded protective aprons	Yes		No
	Number required		________	
i)	Leaded gloves	Yes		No
j)	Exposure metering devices	Yes		No
	Number required		________	
k)	Other equipment (specify)			
	________________________			
2)	Film processing lab			
a)	Processing tank with drain and cold-hot water supply with mixing faucet	Yes		No
	(1) Stainless steel	P	A	NA
	(2) Size required		________	
	(3) Double tanks for insertion into master tank for holding developer and fixing solutions	Yes		No
b)	Processing fluid mixing paddle	Yes		No
	(1) Stainless steel	P	A	NA
	(2) Chrome	P	A	NA
c)	Thermometer, stainless steel holder	Yes		No
d)	X-ray film drying cabinet with fan	Yes		No
e)	X-ray film viewer	Yes		No
	(1) Number of film banks desired		________	
	(2) Concentrated spot viewer	P	A	NA
f)	Unexposed film storage bin, light proof	Yes		No
g)	Film trimmer mechanism	Yes		No
h)	Counter workspace	Yes		No
	Lineal feet required		________	
i)	Under counter storage cabinets for storing cassettes and processing stock solutions	Yes		No
	Number and size cabinets desired		________	
j)	File cabinet for storing processed film	Yes		No
	Number and size cabinets desired		________	
k)	"Safelight," wall mounted (controlled by switches so that room lights and viewing boxes can never be turned on simultaneously with "safelight")	Yes		No
l)	Timing clock with alarm mechanism	Yes		No
m)	Wall mounted clock with luminous dial	Yes		No
n)	Wall mounted intercommunications unit	Yes		No
o)	X-ray cassettes	Yes		No
	(1) Sizes required		________	
	(2) Number required		________	

p) X-ray film hangers	Yes		No
Sizes required	________		
q) Entrance door equipped with inside locking mechanism	Yes		No
r) Air exhaust fan	Yes		No
s) Other equipment (specify) ________	Yes		No
h. Recovery ward			
1) Located as part of animal vivarium	P	A	NA
2) Located as part of or in close proximity to the surgery room	P	A	NA
3) Wall mounted intercommunications unit	Yes		No
4) Stainless steel recovery ward cages	Yes		No
a) Number required	________		
b) Size required	________		
5) Cage with oxygen supply as integral equipment for intensive care patients	Yes		No
6) Electric blanket or heating pad	Yes		No
a) Specify which	________		
b) Number required	________		
7) Storage cabinet for intensive care equipment, special diet foods, intravenous fluids, feeding dishes, etc.	Yes		No
8) Small refrigeration unit	Yes		No
9) Examination table	Yes		No
Stainless steel	P	A	NA
10) Single compartment sink, hot and cold water with mixing faucet	Yes		No
11) Disposable towel dispensor	Yes		No
12) Other equipment (specify) ________			

6. Environmental factors

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the veterinary clinical and hospital management laboratory area(s).

____

____

____

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the veterinary clinical and hospital management laboratory area(s).

____

____

____

____

FORM K

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account and planning the veterinary clinical and hospital management laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special considerations important to the planning of the veterinary clinical and hospital management laboratory area(s).

e. Safety. In planning a school building, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the veterinary clinical and hospital management laboratory area(s).

7. Vertical instructional surfaces

a. Chalkboard	Yes		No
1) Placed in the examination and treatment room	Yes		No
2) Placed in the pharmacy room	Yes		No
3) Placed in the sterilization room	Yes		No
4) Placed in the surgery room	Yes		No
5) Placed in the radiology lab	Yes		No
a) Wall mounted	P	A	NA
Lineal feet required			
b) Portable	P	A	NA
(1) Lineal feet required			
(2) Provision for storage	Yes		No
b. Tackboard	Yes		No
1) Placed in the examination and treatment room	Yes		No
2) Placed in the pharmacy room	Yes		No
3) Placed in the sterilization room	Yes		No
4) Placed in the surgery room	Yes		No
5) Placed in the radiology lab	Yes		No
Lineal feet required			

8. Special utilities services required

a. Electricity

FORM K

1) 110V AC Yes No
2) 220V AC (x-ray lab) Yes No
3) Special lighting requirements (specify)
   a) ____________________
   b) ____________________
   c) ____________________
4) Electrical needs for other equipment (specify)
   a) ____________________
   b) ____________________
   c) ____________________

b. Water
1) Steam hook up to autoclave in sterilization area Yes No
2) Hook up to washing vat in radiology lab Yes No
3) Hook up to boiling water sterilizer Yes No
4) Hook up to water distiller in pharmacy area Yes No
5) Other (specify)
   ____

c. Closed circuit television outlets Yes No
1) Placed in examination and treatment room Yes No
   Number required ________
2) Placed in surgery room Yes No
   Number required ________
3) Placed in radiology lab Yes No
   Number required ________

9. Minimum space requirements in square feet

a. Floor area in square feet for entire veterinary clinical and hospital management laboratory area(s) ________
b. If distinct space divisions are desired according to function, give minimum floor area requirements in square feet for each of the following area if included in desired program:
1) Reception room area ________
2) Examination and treatment room area ________
3) Pharmacy area ________
   a) Storage area ________
   b) Dispensing area ________
4) Sterilization area ________
   a) Cleaning and laundry area ________
   b) Area devoted to strictly sterilization ________
5) Surgical preparation area ________
   a) Area devoted to the operator and assistants ________
   b) Area devoted to the animal "prep" area ________

FORM K

6) Surgery area ____________
7) Radiology lab area ____________
   a) Exposure area ____________
   b) Film processing area ____________
8) Recovery ward area ____________

c. If distinct divisions are desired as separate space from main laboratory area, give minimum floor area requirements in square feet for each of the following areas if included in desired program:

1) Sterilization area ____________
2) Radiology laboratory area ____________
3) Recovery ward ____________
4) ____________________________________ ____________

10. Other important factors to be considered in the planning of the veterinary clinical and hospital management laboratory area(s) are:

____
____
____
____
____
____
____
____
____
____

FORM L

DESCRIPTION OF ANIMAL HUSBANDRY LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The animal husbandry laboratory area(s) should be planned:

a. As independent unit(s)	Yes	No
b. In combination with ____________ (specify) laboratory area(s)	Yes	No
c. In combination with seminar area(s)	Yes	No
d. In combination with lecture/demonstration area(s)	Yes	No
e. As an area within a single multi-purpose space	Yes	No

2. Student capacity required for scheduled activities (see Form E). ____________

3. Student and instructor activities in various space divisions within the animal husbandry laboratory area(s). Indicate the extent to which each activity will occur.

a. Large animal showing and demonstration space				
1) Judging breeds and types of livestock	1	2	3	N
2) Livestock showmanship	1	2	3	N
3) Practice in the casting of animals	1	2	3	N
4) Demonstration and practice in use of portable animal restraint chute	1	2	3	N
b. Animal restraint space				
1) Demonstration of fixed restraint methods	1	2	3	N
2) Anatomical and physiological examination of livestock	1	2	3	N
3) To demonstrate surgical procedures of husbandry nature (such as dehorning)	1	2	3	N
4) To demonstrate large animal hospital and clinical techniques and procedures (such as passing stomach tubes, rumenatomy operations, and other standing operations)	1	2	3	N
5) Student practice as surgical assistants	1	2	3	N
c. Operating table space				
1) To show techniques and methods used in surgical practice requiring anesthesia and lateral recumbency	1	2	3	N
2) Student practice as surgical assistants	1	2	3	N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

d. Animal washing and grooming space
    Practice in the care and preparation of animals for showing and surgical work 1 2 3 N
e. Animal holding space
    Animals available for instructional purposes 1 2 3 N
f. Animal weighing space
    1) To show animal age growth as compared to standards and management practices 1 2 3 N
    2) To show best marketing weights 1 2 3 N
    3) Practice in weighing and estimating animal weights for computing amount of anesthetics or drugs required in clinical practices 1 2 3 N
g. Student seating space
    1) To view activities (demonstrations) in the large animal showing and demonstration space 1 2 3 N
    2) To lecture and to use visual aids as related to applied animal science 1 2 3 N
h. Livestock breeding space
    1) To show the collection and storage of semen 1 2 3 N
    2) To demonstrate and practice the techniques involved in the artificial insemination of livestock 1 2 3 N
i. Storage space
    1) Drugs and medicine available for instructional purposes 1 2 3 N
    2) Supplies available for the care and handling of livestock 1 2 3 N
    3) Visual aids used as instructional resource materials 1 2 3 N
j. Surgical clean-up space
    1) Student scrub area 1 2 3 N
    2) Washing and drying of instructional equipment and supplies 1 2 3 N
k. Other space(s) (specify)
    1) ____________________________________
    2) ____________________________________

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other:

a. Within the animal husbandry laboratory area(s)
    Large animal showing and demonstration space(s) to:

FORM L

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

a) Animal restraint space	1	2	3	N
b) Operating table space	1	2	3	N
c) Animal washing and grooming space	1	2	3	N
d) Animal holding space	1	2	3	N
e) Animal weighing space	1	2	3	N
f) Student seating space	1	2	3	N
g) Livestock breeding space	1	2	3	N
h) Storage space	1	2	3	N
i) Surgical clean-up space	1	2	3	N
j) Other space(s) (specify)				
____________________	1	2	3	N
____________________	1	2	3	N

b. Animal husbandry laboratory area(s) to outside related areas

1) Instructional materials center	1	2	3	N
2) Sterilizing area	1	2	3	N
3) Livestock housing area	1	2	3	N
4) Student lockers and restrooms	1	2	3	N
5) Building entrance	1	2	3	N
6) Livestock unloading ramp	1	2	3	N
7) Other instructional areas	1	2	3	N
8) Other building areas (specify)				
____________________	1	2	3	N
____________________	1	2	3	N

5. Furniture and equipment

a. Large animal showing and demonstration space	P	A	NA
1) Provision for animal tie rails	Yes		No
2) Provision of space for animal action	Yes		No
3) Provision for floor drains	Yes		No
4) Provision for artificial and natural lighting	Yes		No
5) Provision for animal watering	Yes		No
6) Outlets provided for public address system	Yes		No
Number required	________		
7) Other provisions (specify)			
a) ____________________			
b) ____________________			
b. Animal restraint equipment	P	A	NA
1) Provision for casting animals	Yes		No
2) Fixed stock restraint equipment	Yes		No
Number required	________		
c. Operating equipment	P	A	NA
1) Portable hydraulic operating table	Yes		No
2) Portable instrument and surgical supply table	Yes		No
3) Provision for special lighting	Yes		No

FORM L

d. Animal washing and grooming	P A NA
1) Hose stations	Yes No
Number required	______
2) Animal clipping stations	Yes No
Number required	______
3) Provision for drainage	Yes No
e. Animal holding equipment	P A NA
Pen areas	Yes No
Number and type required	______
f. Animal weighing equipment	P A NA
1) Portable scale	Yes No
Number and type required	______
2) Stationary scale	Yes No
Number and type required	______
g. Student seating	P A NA
1) Bleacher type seating with tablet arms	Yes No
Number required	______
2) Other seating (specify)	
a) ______	Yes No
b) ______	Yes No
3) Provision for instructor	Yes No
4) Other provisions (specify)	
______	
______	
h. Livestock breeding equipment	P A NA
1) Breeding rack	Yes No
2) Provision for collection of semen	Yes No
3) Provision for storage of semen	Yes No
4) Artificial reproductive organs of cow-model	Yes No
5) Provision for working space around rack	Yes No
i. Storage furniture	P A NA
1) Cabinet for storage of medicine	Yes No
Number of type required	______
2) Cabinet for storage of instructional supplies	Yes No
Number of type required	______
3) Cabinet for storage of supplies used to show and fit animals	Yes No
Number required	______
j. Clean-up equipment	P A NA
1) Scrub sink for students	Yes No
2) Wash sink for supplies and equipment	Yes No
3) Provision for water supply and drains	Yes No

k. Other equipment required for the animal husbandry laboratory area(s) are:

1) ______
2) ______
3) ______
4) ______

6. Environmental factors

FORM L

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the animal husbandry laboratory area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the animal husbandry laboratory area(s).

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the animal husbandry laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound system. Indicate any special considerations important to the planning of the animal husbandry laboratory area(s).

e. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the animal husbandry area(s).

7. Vertical instructional surfaces

a. Chalkboard	Yes		No
1) Number of lineal feet			
2) Wall mounted	P	A	NA
3) Portable	P	A	NA
4) Provision for storage	Yes		No
b. Tackboard	Yes		No

FORM L

Number of lineal feet ________

c. Pegboard Yes No

Number of lineal feet ________

8. Special utility services required

a. Electricity
    1) 110V AC Yes No
    2) 220V AC Yes No
    3) Special lighting requirements (specify)
        a) ________________________
        b) ________________________
        c) ________________________
        d) ________________________

b. Gas
    1) Instructor demonstrator-lecture table outlets Yes No
    2) Other equipment using gas
        a) ________________________
        b) ________________________

c. Water
    1) Sinks Yes No
    2) Hose stations--necropsy area Yes No
    3) Other (specify) ________________

d. Water supply Yes No

e. Outlets for T.V. Yes No

Number required ________

9. Minimum space requirements in square feet

a. Floor area in square feet for entire animal husbandry laboratory area(s) ________

b. If distinct space divisions are desired according to function, give minimum floor area requirements in square feet for each of the following areas if included in desired program:
    1) Large animal showing and demonstration area ________
    2) Animal restraint area ________
    3) Operating table area ________
    4) Animal washing and grooming area ________
    5) Animal holding space ________
    6) Animal weighing area ________
    7) Student seating space ________
    8) Livestock breeding area ________
    9) Storage area ________
    10) Clean-up area ________
    11) Other equipment areas ________

10. Other important factors to be considered in the planning of the animal husbandry laboratory area(s) are:

____

____

FORM M

DESCRIPTION OF VIVARIUM AND AUXILIARY AREA(S)

A facility planning guide for animal science technology would not be complete without consideration of an animal vivarium and certain related auxiliary areas. Although the vivarium and these auxiliary areas are not designated as true laboratories, they do tend to serve and support the instructional laboratory areas and in some cases the lecture/demonstration and/or seminar areas. This form will elucidate the important aspects of the animal vivarium and auxiliary areas which may be included in the planning process.

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The animal vivarium and auxiliary area(s) should be planned:

a. As independent unit(s)	Yes	No
b. In combination with __________ laboratory area(s) (specify)	Yes	No
c. In combination with lecture/demonstration area(s)	Yes	No
d. In combination with seminar area(s)	Yes	No

2. Student capacity required for scheduled activities (see Form E). __________

3. Student, instructor and animal caretaker activities within the animal vivarium and auxiliary area(s). Indicate the extent to which each activity will occur.

a. Practice in feeding, watering and general care of all laboratory animal species	1	2	3	N
b. Practice in cleaning of cages and replacing with clean litter	1	2	3	N
c. Breeding the various species at proper intervals to maintain the animal stock level to support instruction in the using lecture or laboratory areas	1	2	3	N
d. Practice in feeding, watering, cleaning and handling of boarded pet animals	1	2	3	N
e. Practice in setting up experimental designs using laboratory animals	1	2	3	N
f. Learning to handle, prepare, and store sterilized feed for axenic and gnotobiotic animals	1	2	3	N
g. Practice in operating a commercial type cage washer	1	2	3	N

FORM M

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

h.	Practice in operating an incinerator for sanitary disposal of dead or diseased animals	1 2 3 N
i.	Practice in managing a veterinary hospital medical and boarding ward	1 2 3 N
j.	Experience in the importance of properly working air conditioning in an animal vivarium as to air changes, specific temperature and humidity controls for the different laboratory animal species	1 2 3 N
k.	Learning the importance of species separation in regards to cross current infections with indigenous diseases	1 2 3 N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

The animal vivarium and auxiliary area(s) to:

a.	Clinical testing and analysis laboratory	1 2 3 N
b.	Basic veterinary sciences laboratory	1 2 3 N
c.	Animal care laboratory	1 2 3 N
d.	Veterinary clinical and hospital management laboratory area(s)	1 2 3 N
e.	Lecture/demonstration area(s)	1 2 3 N
f.	Seminar area	1 2 3 N
g.	Instructional materials center	1 2 3 N
h.	Student locker and restrooms	1 2 3 N
i.	Building entrance--rear	1 2 3 N
j.	Delivery area	1 2 3 N
k.	Parking area	1 2 3 N
l.	Other instructional area(s) (specify) ____________________	1 2 3 N
m.	Other building areas (specify)	
	1) ____________________	1 2 3 N
	2) ____________________	1 2 3 N

5. Laboratory animal species desired:

a.	Dogs	Yes	No
	Number required	________	
b.	Cats	Yes	No
	Number required	________	
c.	Rabbits	Yes	No
	Number required	________	
d.	Guinea pigs	Yes	No
	Number required	________	
e.	Hamsters	Yes	No
	Number required	________	

FORM M

f. Gerbils	Yes		No
Number required	________		
g. Rats	Yes		No
Number required	________		
h. Mice	Yes		No
Number required	________		
i. Primates	Yes		No
Number required	________		
j. Mini-pigs	Yes		No
Number required	________		
k. Japanese quail	Yes		No
Number required	________		
l. Other species desired (specify)			
1) ______________________________	Yes		No
Number required	________		
2) ______________________________	Yes		No
Number required	________		
3) ______________________________	Yes		No
Number required	________		

6. Equipment or facilities for animal vivarium and auxiliary area(s)

a. Dog caging	Yes		No
1) Stainless steel	P	A	NA
2) Galvanized	P	A	NA
3) Plastic	P	A	NA
4) Size required (refer to I.L.A.R. minimum standards)	________		
5) Number required	________		
6) With access to outside runs	P	A	NA
Size of individual outside runs	________		
b. Cat caging	Yes		No
1) Colony housing	P	A	NA
2) Individual housing	P	A	NA
a) Stainless steel	P	A	NA
b) Galvanized	P	A	NA
c) Plastic	P	A	NA
d) Size cage required (I.L.A.R. minimum standards)	________		
e) Number required	________		
c. Rabbit caging	Yes		No
1) Stainless steel	P	A	NA
2) Galvanized	P	A	NA
3) Size required (I.L.A.R. minimum standards)	________		
4) Number units required	________		
5) Mobile caging units	P	A	NA
d. Guinea pig caging	Yes		No
1) Stainless steel	P	A	NA
2) Galvanized	P	A	NA
3) Single caging	P	A	NA
4) Battery (communal) caging	P	A	NA

FORM M

	5) Size required (I.L.A.R. minimum standards)	___
	6) Number caging units required	___
	7) Mobile caging units	P A NA
	8) Number and size of cage racks required	___
e.	Hamster caging	Yes No
	1) Galvanized cages	P A NA
	2) Plastic cages	P A NA
	3) Size required (I.L.A.R. minimum standards)	___
	4) Number caging units required	___
	5) Number and size of cage racks required	___
f.	Rat caging	Yes No
	1) Galvanized hanging cages	P A NA
	2) Plastic caging	P A NA
	3) Size required (I.L.A.R. minimum standards)	___
	4) Number of caging units required	___
	5) Number and size of cage racks required	___
g.	Mouse caging	Yes No
	1) Plastic caging	P A NA
	2) Galvanized	P A NA
	3) Stainless steel caging	P A NA
	4) Size required (I.L.A.R. minimum standards)	___
	5) Number caging units required	___
	6) Number and size of cage racks required	___
h.	Gerbil caging	Yes No
	1) Plastic caging	P A NA
	2) Galvanized caging	P A NA
	3) Stainless steel caging	P A NA
	4) Size required (I.L.A.R. minimum standards)	___
	5) Number caging units required	___
	6) Number and size of cage racks required	___
i.	Mini-pig caging	Yes No
	1) Stainless steel caging	P A NA
	2) Galvanized caging	P A NA
	3) Size caging required (I.L.A.R. minimum standards)	___
	4) Number caging units required	___
	5) Mobil caging desired	P A NA
j.	Japanese quail caging	Yes No
	1) Galvanized caging	P A NA
	2) Stainless steel caging	P A NA
	3) Battery caging	P A NA
	4) Singular or paired caging	P A NA
	5) Size caging required	___
	6) Number caging units required	___
k.	Caging for other species (specify)	Yes No
	___	
	1) ___	
	2) ___	
	3) ___	
	4) ___	

FORM M

1. Additional vivarial equipment or facilities			
1) Cages equipped with dishes and dishholders for feeding cats, dogs and primates	Yes		No
2) Cages equipped with sipper tube bottles and removable trays for watering and feeding rabbits and guinea pigs	Yes		No
3) Cages equipped with sipper tube bottles and molded grill wire tops for watering and feeding hamsters, gerbils, rats, and mice	Yes		No
4) Caging equipped with troughs for watering and feeding mini-pigs	Yes		No
5) Caging equipped with ______inch square wire mesh flooring, water fountains, and removable tray feeders for cleaning, watering and feeding Japanese quail	Yes		No
6) Each lab animal species caged and housed separately from another species	Yes		No
7) If more than one species are to be housed together, specify the species involved	__________		
8) Vivarial room walls to be finished with:			
a) Vinyl plastic covering	P	A	NA
b) Ceramic tile	P	A	NA
c) Other (specify) _______________	P	A	NA
9) Vivarial room floors:			
a) To be finished with:			
(1) Smooth concrete	P	A	NA
(2) Painted surface	P	A	NA
(3) Vinyl tile	P	A	NA
(4) Ceramic tile	P	A	NA
(5) Other (specify) ___________	P	A	NA
b) To be equipped with a central water drain, properly trapped	P	A	NA
10) Each vivarial room to be equipped with a double compartment sink, with drainboard, hot and cold water supply with mixing faucet	Yes		No
11) Work table or work counter in each vivarial room	Yes		No
Size table required	__________		
12) Electronic balance scale provided for weighing in each small laboratory animal species room	Yes		No
13) Spring balance scale provided for weighing in each of the larger laboratory animal species rooms	Yes		No
14) Waste receptacle and disposable towel dispensor provided in each vivarial room	Yes		No

FORM M

15)	Storage cabinet for miscellaneous equipment and supplies located in each vivarial room	Yes No
	Size cabinet required	___
16)	Separate climate controlled air conditioning provided for each animal species room so as to provide 12-18 changes of air per hour and optimum temperature and humidity for each species as recommended by the Institute of Laboratory Animal Resources	Yes No
17)	Temperature--humidity recording thermometer, wall mounted in each room to monitor actual aerial conditions experienced	Yes No
18)	Chalkboard and tack board mounted on wall in each vivarial room	Yes No
	Lineal feet required	___
19)	Commercial cage and rack washer	Yes No
	Size or capacity washer required	___
20)	Cage drying rack	Yes No
	Size rack required	___
21)	Commercial bottle washer	Yes No
	Capacity washer required	___
22)	Animal incinerator	Yes No
	a) Capacity of burner and burning chamber required	___
	b) Incinerator located indoors	Yes No
	c) Incinerator located outside vivarial facility	Yes No
23)	Food, bedding, and animal supplies storage	Yes No
	a) Provided as cupboards or cabinets along wall of cage washing area	P A NA
	b) Provided as a separate room from cage washing area	P A NA
	c) Made of vermin proof materials	P A NA
	d) Bedding to be stacked in bales	P A NA
	e) Bins to be supplied in storage area for bedding	P A NA
	f) Refrigeration unit provided for storing perishable foods	Yes No
	g) Shelving to be provided for dry food and supplies storage	Yes No
	Lineal feet required	___
	h) Storage door provided with locking system	Yes No
	i) Feed and bedding carts with multiple bins	Yes No
	(1) Size of carts needed	___
	(2) Number of carts needed	___
24)	Floor of cage washing area to slope towards a system of properly trapped drains	P A NA

m. Special vivarial equipment options
  1) Automatic watering devices P A NA
  2) Automatic cage flushing devices P A NA

7. Special utilities services required

a. Electricity
  1) 110V AC Yes No
  2) 220V AC (air conditioning and heating unit) Yes No
  3) Natural lighting provided in daytime P A NA
    a) Number of windows to be provided ________
    b) Window sizes ________
  4) All lighting by fluorescent lamps P A NA
    Number of lamps required ________
  5) Ultra violet germicidal lamps provided in each vivarial room P A NA

b. Intercommunication unit mounted in each vivarial room Yes No

c. Water
  1) Hose connection mounted on wall of cage cleaning area, hot and cold water supply with mixing faucet provided Yes No
  2) Hot and cold water supply to sinks in each vivarial room Yes No
  3) Hot water (180° F. or higher) and cold water supply to cage washer Yes No
    Pounds water pressure required ________

8. Minimum space requirements in square feet

a. Floor area in square feet for entire animal vivarium and auxiliary area(s) ________

b. Minimum floor area requirements in square feet for each of the distinctly separate areas comprising the area in (a) above
  1) Food, bedding, and animal supplies storage area ________
  2) Cage and bottle washing area ________
  3) Dog housing area ________
  4) Cat housing area ________
  5) Rabbit housing area ________
  6) Guinea pig housing area ________
  7) Hamster housing area ________
  8) Gerbil housing area ________
  9) Rat housing area ________
  10) Mouse housing area ________
  11) Primate housing area ________
  12) Mini-pig housing area ________
  13) Japanese quail housing area ________
  14) Other (specify) ________________ ________

FORM M

9. Other important factors to be considered in the planning of the animal vivarium and its auxiliary area(s) are:

____
____
____
____
____
____
____
____
____
____

FORM N

DESCRIPTION OF THE INSTRUCTIONAL MATERIALS CENTER AREA

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The instructional materials center area should be planned:

a. As independent unit(s)	Yes	No
b. In combination with ______ laboratory area(s) (specify)	Yes	No
c. In combination with lecture/demonstration area(s)	Yes	No
d. In combination with seminar area(s)	Yes	No
e. As an area within a single multi-purpose space	Yes	No

2. Student and/or instructor activities within the instructional materials center area. Indicate the extent to which each activity will occur.

a. Storing 8 mm and 16 mm movie projectors	1	2	3	N
b. Storing portable projection screen	1	2	3	N
c. Storing 2" X 2" carousel slide projector	1	2	3	N
d. Storing 35 mm--2" X 2" instructional slides	1	2	3	N
e. Storing 8 mm and 16 mm instructional films	1	2	3	N
f. Storing overhead projection equipment	1	2	3	N
g. Filing and storing transparencies for overhead projection	1	2	3	N
h. Mimeographing instructional materials, reports, etc.	1	2	3	N
i. Storing office supplies	1	2	3	N
j. Storing 35 mm camera	1	2	3	N
k. Collating reports, instructional materials, etc.	1	2	3	N
l. Storing film strip projector	1	2	3	N
m. Storing tape recorder	1	2	3	N

3. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

The instructional materials center area to outside related areas:

1) Clinical testing and analysis laboratory	1	2	3	N
2) Basic veterinary sciences laboratory	1	2	3	N
3) Animal care laboratory	1	2	3	N
4) Veterinary clinical and hospital management laboratory	1	2	3	N

FORM N

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

5)	Animal husbandry laboratory	1 2 3 N
6)	Lecture/demonstration area	1 2 3 N
7)	Seminar area	1 2 3 N
8)	Faculty offices	1 2 3 N

4. Furniture and equipment

a.	Wall shelving	Yes No
	Lineal feet required	________
b.	File cabinets	Yes No
	Number required	________
c.	Counter work space	P A NA
	Lineal feet and width required	________
d.	Table work space	P A NA
	Size table required	________
e.	Mimeograph machine	Yes No
f.	Table for mimeograph machine	Yes No
g.	8 mm movie projector	Yes No
h.	16 mm movie projector	Yes No
i.	Portable projection screen	Yes No
j.	Carousel 2" X 2" slide projector	Yes No
k.	Overhead projector	1 2 3 N
	Number required	________
l.	35 mm camera	1 2 3 N
m.	Film strip projector	1 2 3 N
n.	Tape recorder, 2 speed	1 2 3 N

5. Special utilities services required

Electricity

1)	Artificial lighting	Yes No
2)	110V AC base or wall outlets for operating mimeograph or projection equipment	Yes No

6. Minimum space requirements in square feet for the instructional materials center area ________

7. Other factors to be considered in the planning of the instructional materials center area are:

____
____
____
____
____
____
____
____
____

FORM O

ADDITIONAL PLANNING CONSIDERATIONS

Other important factors to be considered in the overall planning and design of instructional areas for the planned animal science occupational preparation program(s) are:

PART IV

ANNOTATED BIBLIOGRAPHY

GENERAL FACILITY PLANNING

American Association of School Administrators. Planning America's School Buildings. Washington, D.C.: The Association, 1960.

Contributors to this publication were teachers, supervisors, administrators, architects, engineers, school board members, and school plant planning specialists. In addition to background material on school house construction, the book deals with specific topics including school surveys, analysis and computation of space and facility needs, enrollment projections, building designs, site selection, finance, and building maintenance and operation. Many pictures and illustrations are found, along with sample forms and outlines, which can be used in the facility planning process. No special consideration is given to unique problems faced in the planning for vocational and technical education facilities.

Boles, Harold W. Step by Step to Better School Facilities. New York: Holt, Rinehart, and Winston, 1965.

A textbook on overall planning procedures for new and improved school facilities. The typical topics (school surveys, building planning, site selection and acquisition, architectural planning, contracting for construction, and the equipping and furnishing of buildings) are covered. The only mention of vocational schools is on page 270 where the author quotes from another source:

> Vocational training should be de-emphasized in the schools since this training often becomes obsolete before it can be used; also, special "trade" and "vocational" schools should be discontinued, unless the vocational curriculum is liberal in approach and broad in character. Such schools are often used as dumping grounds for students who are not wanted elsewhere and often no more than custodial care is provided for them. When more is provided, the skills taught are frequently too partial in nature.

Conrad, M. J. Four Steps to New Schools. Columbus, Ohio: Educational Administration and Facilities Division of the Bureau of Educational Research and Service. The Ohio State University.

A book prepared for the inexperienced school planner. The author emphasizes that a school building is an educational tool and should be designed to do the job it is intended to do. The four steps discussed are: 1) district-wide building survey; 2) educational planning; 3) architectural planning and construction; and 4) moving in and settling down. A glossary of important terms used in plant planning is located in the back of the book.

Conrad, M. J.; Wohlers, E. E.; and Griggs, Norman. School Plant Planning: An Annotated Bibliography. Columbus, Ohio: The Administration and Facilities Unit, School of Education, The Ohio State University, 1968.

A compilation of references in the following categories: general references; periodicals; overview of school plant field; district wide building survey; educational planning; the architect and his work; moving in and settling down; and related topics.

Finchum, R. N. Extended Use of School Facilities. Washington, D.C.: U. S. Department of Health, Education, and Welfare, 1967.

This manual is intended to assist officials of school districts who are planning programs for maximum use of school properties and who must develop policies and regulations for efficient management of such programs. Various schedules of facility use are illustrated for nine different school systems.

Green, Alan C. Educational Facilities With New Media. Washington, D.C.: Department of Audiovisual Instruction, National Education Association, 1966.

This work is designed to meet the needs of three distinct groups interested in providing educational facilities. Report A: "A Guide for Policy Makers" is directed to boards, administrators, planning committees, and institutional planners. Report B: "A Guide for the Design of Professions" is designed for architects, planners, and design specialists and planning committees; and Report C: "A Technical Guide" is intended for design-architects, engineers, equipment and furniture suppliers, and media specialists.

National Council on School House Construction. NCSC Guide for Planning Plants. East Lansing, Michigan: The Council, 1964.

A basic reference on school plant planning and construction for use by superintendents, school board members, school plant planners, state department of education personnel, local school system officials, collegiate institutions, architects, lay advisory groups, and graduate students. Major topics

covered are: planning and programming educational plants; spaces and equipment for learning; non-instructional systems; space organization and economy and resources. Much attention is given to plant planning through a description of a survey technique used to determine and satisfy school plant needs for a community. Site selection, kinds of instructional spaces, sonic, termal, and visual environments, and best use of natural and plant resources are also treated.

North Carolina. Department of Public Instruction. A Digest of Educational Planning. Raleigh, North Carolina: The Department.

The contents of this book include a description of what educational planning is, when it is done, who does it, and how it is done. The three steps of planning are identified as 1) identification and analysis of educational and facility needs, 2) adapting and implementing plant improvement programs, and 3) completing and evaluating a process of the educational planning.

North Carolina. Department of Public Instruction. The Division of School Planning. School Design. Raleigh.

Basic principles of school design is the thrust of this publication. It focuses on the interrelationship of patterns of school activities, organization of activities on the site, design potentials for various sites, and the building design data necessary for communicating the school's needs to the architect.

School Planning Laboratory. Spectrum of Electronic Teaching Aids in Education. Stanford, California: Stanford University, 1965.

This publication seeks to suggest which learning functions can be served electronically to symbolize the nature and progressive complexity of each electronic system, and finally to estimate budgets which will provide for adequate systems in relation to engineering and warranty costs.

Strevell, Wallace H., and Burke, Arvid J. Administration of the School Building Program. New York: McGraw-Hill Book Company, Inc., 1959.

A comprehensive textbook on the administration of the school plant program. The book is organized into three major parts. Part I - "Policy Decisions" deals with school building needs studies and long-range planning. Part 2 - "Program Recommendations" deals with local study of plant needs, evaluation of existing plant, determination of additional plant needs, site selection and development, and the preparation of educational specifications. Part 3 - "Project Administration" is concerned with the financial aspects of a building program and with public relations. There is a brief mention of the objectives of vocational education as contrasted with the objectives of general education on page 12.

The Cost of a Schoolhouse. New York: Educational Facilities Laboratories, 1960.

This book deals with the cost of a schoolhouse and the process of planning and financing it. It provides median costs for various building elements, designates individual responsibilities in process of building, and discusses arrangement of space and environmental factors.

VOCATIONAL-TECHNICAL FACILITY PLANNING

American Vocational Association. *Developing Educational Specifications for Vocational and Practical Arts Facilities*. Washington, D.C.: The Association.

The purpose of this publication is to reduce the broad principles and processes of school plant planning to those most applicable to vocational and practical arts education. Effective techniques for developing educational specifications are suggested. The committee provides a sequential treatment of program and administrative considerations, desired space and educational program, special site arrangement features, special physical aspects of building, and the financial requirements for the project.

Calder, Clarence R. *Modern Media for Vocational-Technical Education*. Connecticut: State Department of Education, 1967.

A study of related literature on programmed instruction, instructional films, instructional television, and learning from various instructional media. It analyzes new instructional media approaches used at North Carolina's Fundamental Learning Laboratories System, and the integrated experience approach at Oakland Community College.

Chase, William W.; Browne, Johnny W., and Russo, Michael. *Basic Planning Guide for Vocational and Technical Education Facilities*. Washington, D.C.: Department of Health, Education, and Welfare, U. S. Government Printing Office, 1965.

A general guide that describes important steps to be followed in the planning for and construction of vocational and technical education facilities. Important topics covered are: the impact of the Vocational Education Act of 1963; surveys of area educational needs; use of consultant services; basic planning considerations; educational specifications; general planning; and school construction cost and outlay. Sample floor plans and picture illustrations of vocational schools are included.

McKee, Robert L. and Ripley, Katherine J. *The Documentation of Steps to Establish a Technical College and the Evaluation of PERT as a Planning Tool for Educators*. Bailey's Crossroads, Virginia: Unpublished report, 1966.

An account of the procedures followed in the establishment of a technical college within a period of less than 90 days. The entire planning process and implementation is described along with the PERT technique which was applied. The author concluded the PERT (Program Evaluation and Review Technique) was effective in assisting the planners in reaching their objectives within a short period of time.

Stanford University. *Trends in Facility Design-Vocational-Technical Continuing Information Program*. Stanford, California: School of Education, 1966.

The pamphlet emphasizes the need for a total flexibility concept in school building. Consideration is given to the use of building components to provide flexibility in space, lighting, air-conditioning, sewage system, and the like.

U. S. Department of Health, Education, and Welfare. *New Ideas and Construction for Vocational Education*. Washington, D.C.: Unpublished, 1967.

A report on new trends in the construction of vocational education facilities. Among topics covered are occupational clusters, teaching techniques such as micro-teaching and educational television, facilities for handicapped children, educational parks, and unique problems faced by large city school systems. Special consideration is given to maximum utilization of vocational education facilities on an around-the-clock basis.

Valentine, Ivan E. and Conrad, M. J. *Progress Report: Vocational-Technicial Facilities Project*. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1967.

A report which relates the thinking of six outstanding consultants on various topics relating current trends in vocational technical education and facility planning. Reviews the work of a local consortium consisting of three Center vocational specialists, three school plant planners, three representatives from the State Department of Education, three local school officials, and three practicing architects in defining problems, clarifying issues, suggesting approaches to organizing planning guides, and establishing guidelines for a series of facility planning guides in selected vocational and technical subject areas.

Wohlers, A. E. *A Manual for Planning a Secondary School Building (Vocational Education)*. Columbus, Ohio: The Administration and Facilities Unit, School of Education, The Ohio State University, Pamphlet C-14.

A general facility planning guide for programs of vocational education. Principal topics covered include: 1) number of teaching stations; 2) types of teaching stations; 3) equipment needs; and 4) floor areas required. The planning manual also deals with spatial relationships of teaching facilities

and the utilization of auxilliary areas such as libraries, cafeterias, and administrative suites. Planners using the guide are directed to complete checklists and fill-in blanks with the necessary information pertinent to vocational facility planning.

ANIMAL SCIENCE TECHNOLOGY FACILITY PLANNING

Guide for Laboratory Animal Facilities and Care. U. S. Department of Health, Education and Welfare, Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. Revised 1965.

A booklet prepared by the committee on the Guide for Laboratory Animal Facilities and care of the Institute of Laboratory Animal Resources National Academy of Sciences--National Research Council. This publication serves as a useful reference for institutions conducting animal care programs or animal vivariums. Laboratory and large animal housing and care is explained in some detail.

Institute of Laboratory Animal Resources. Standards for the Breeding, Care, and Management of Laboratory Animals. 2101 Constitution Avenue, Washington, D. C.: National Academy of Sciences--National Research Council.

A series of reports, prepared under the auspices of the Institute of Laboratory Animal Resources, outlining the currently accepted minimum standards for the housing, breeding, care, and management of each of the most commonly used laboratory animal species.

Journal of the American Veterinary Medical Association. 600 South Michigan Avenue, Chicago, Illinois 60605.

A professional journal published semimonthly by the American Veterinary Medical Association. Articles are published on large and small animals with clinical items and animal research abstracts.

State University of New York, Agricultural and Technical College, Animal Science Program Descriptions, Delhi, New York.

The two year college at Delhi, with its laboratory animal science technology program has facility plans and equipment lists. These materials are available upon request to the college.

Veterinary Economics, St. Joseph, Michigan.

A veterinarian's business magazine published monthly. Selected editions of the 1967 and 1968 issues have articles on plans for the construction of veterinary hospital and clinical facilities.

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THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

RESEARCH SERIES

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2	The Demand for and Selected Sources of Teachers in Vocational and Technical Education, State Directory. January 1967. 31+[5] p. ED012331	o
3	Research and Development Priorities in Technical Education. May 1967. 34 p. ED013888	o
4	Review and Synthesis of Research in Agricultural Education. August 1966. 140 p. ED011562	1.50
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10	Review and Synthesis of Research in Trade and Industrial Education. August 1966. 76 p. ED011560	o
	Set of Seven Research Reviews (nos. 4-10)	10.00
11	The Emerging Role of State Education Departments with Specific Implications for Divisions of Vocational-Technical Education. 1967. ED016870	4.50
12	A Taxonomy of Office Activities for Business and Office Education. July 1968. 163 p. VT005935 RIE	2.75
13	Enlisted Men Separating from the Military Service as a Potential Source of Teachers for Vocational and Technical Schools. October 1967. 53 p. ED016131	*
14	Boost: Business and Office Education Student Training; Preliminary Report. 1967. 251 p. VT005131 RIE	3.00
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19	Implications of Women's Work Patterns for Vocational and Technical Education. October 1967. 70 p. ED016815	2.00
21	An Evaluation of Off-farm Agricultural Occupations Materials. October 1967. 74 p. ED016853	*

LEADERSHIP SERIES

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3	Guidelines for State Supervisors of Office Occupations Education. 1965. 84 p. VT001266 RIE	o
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7	Report of a National Invitational Research Planning Conference on Trade and Industrial Teacher Education, May 23-27, 1966. 1966. 197 p. ED011043	2.00

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10	Guidelines for Cooperative Education and Selected Materials from the National Seminar held August 1-5, 1966. 1967. 255 p. ED011044	o
11	Systems Under Development for Vocational Guidance. 1966. 60 p. ED011039	o
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13	Compilation of Technical Education Instructional Materials--Supplement II. April 1967. 242 p. ED011933	3.50
14	Educational Media in Vocational and Technical Education: Report of a National Seminar. 1967. 240 p. ED017730	o
15	Vocational-Technical Education: National Seminar Proceedings. 1968. 283 p. VT005627 RIE	3.25
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